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MACFORMAT

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GH

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	MHz	RAM	HD	MODEM	MONITOR	CD	TV	MPEG	K/B	Price
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RAM	HD	MODEM	MONITOR	CD	TV	MPEG	K/B	Price
8Mb	1.2Gb	✔28.8	15" Int.	✔4	✔V-In	✔	✔	£1179

Why not add an extra 8Mb RAM to your 5320 for only £30 + VAT!

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- 180/200MHz Power PC 603e • 8 Speed CD
- 16/24Mb RAM, 1.6/2.4Gb Hard Drive
- Keyboard • Monitor Options (see page 2)

APPLE HOME OFFICE MACINTOSH

MHz	RAM	HD	MODEM	MONITOR	CD	TV	K/B	Price
180	16Mb	1.6Gb	✔28.8	✘	✔8	✘	✔	£1349
180	16Mb	1.6Gb	✔28.8	15" AV M/S	✔8	✘	✔	£1599
200	16Mb	2.4Gb	✔28.8	✘	✔8	✘	✔	£1599
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200	24Mb	2.4Gb	✔28.8	✘	✔8	✔Vid	✔	£1999
200	24Mb	2.4Gb	✔28.8	15" AV M/S	✔8	✔Vid	✔	£2249

MODEL	MHz	RAM	HD	CD	Price
7200/90	90	8Mb	1.2GB	✔4	£1049
FREE MS OFFICE 4.2.1 7600/132	132	16Mb	1.2Gb	✔8	£1699
FREE MS OFFICE 4.2.1 8200/120	120	16Mb	1.2Gb	✔8	£1249
8500/180	180	16Mb	2Gb	✔8	£2369
9500/200	200	0Mb	0Gb	✔8	£2129
9500/200 Including Apple Graphics Card	200	32Mb	2Gb	✔8	£2799
9500/2x180 Includes TWO 180MHz CPUs and Apple Graphics Card	2x180	32Mb	2Gb	✔8	£3399

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7200/7600/8200/8500/9500s NOW INCLUDE FREE... APPLE INTERNET CONNECTION KIT AND ADOBE PAGEMILL!

PERFORMA 6320

6320, 12/1200, 8 Speed CD

£829

JUST £6.58 PER WEEK

- 120MHz Power PC 603e
- 12Mb RAM/1.2Gb Hard Drive
- Eight Speed CD • Keyboard
- Disney Plus 3 Software

RAM	HD	MODEM	MONITOR	CD	TV	K/B	Price
12Mb	1.2Gb	✘	✘	✔8	✘	✔	£829
12Mb	1.2Gb	✘	14" M/S	✔8	✘	✔	£1058
12Mb	1.2Gb	✘	15" M/S	✔8	✘	✔	£1118
12Mb	1.2Gb	✘	15" AV M/S	✔8	✘	✔	£1149

POWERBOOK

POWERBOOK RANGE...

1400cs/117 12/750 DS	£1629
1400cs/117 16/750 CD DS Inc. StyleWriter 2200 Printer	£2149
1400c/117 16/1100 CD AM	£2399
1400c/133 16/1100 CD	£2699
Duo 2300c-100 20/1100 EM/AM	£1549

Check out the BARGAIN 'Dock Plus' Price!

CALL FOR LAST FEW POWERBOOK 5300 MODELS!

1400s SUPPLIED WITH...

Claris Works, Claris Organiser, Route 66, Apple Internet Connection Kit, ARA, GSM Conn. Kit

DS=Dual Scan Display
AM=Active Matrix Display

SPECIAL DUO 2300c WITH 'DOCK PLUS' BARGAIN!!!

DUO 2300c - 100 20/1100 EM/AM WITH DUO DOCK PLUS BUNDLE ONLY £1729 + VAT

HURRY - Only While Stocks Last!

POWERBOOK OPTIONS...

190/5300 8Mb Upgrade	£89
190/5300 16Mb Upgrade	£139
190/5300 Battery (NiMH)	£59
190/5300 Carry Case	from £20
1400 Six Speed CD ROM	£199
1400 8-Bit Video Out Card	£70
1400 A/C Adaptor	£39
1400 Battery	£69
1400 TDK 28.8 Fax/Modem	£229

MACCELERATE!

Accelerator Boards for Power Macintosh Computers

FANTASTIC NEW ACCELERATORS TO MAKE YOUR MAC FLY! for PowerMac 7500, 7600, 8500 and 9500 Models

SPECIAL LAUNCH OFFER - 150MHz Only...£249

- 180MHz £399 • 200MHz £499

PERFORMAOPTIONS

FOR 630/5200/5260/5300/5320/6200/6300/6320

- PERSONAL COMMS SOLUTION *(models without Ethernet)* FAX, ANSWERPHONE, & INTERNET etc... 14.4 version £109 28.8 version £179
- ETHERNET CARDS *(for models without Personal Comms Solution)*... Thin Co-Ax £59 UTP £59 AUI (requires adaptor) £59
- VIDEO-IN CARD - £89 VIDEO-OUT CARD - £219
- VIDEO-IN TV TUNER CARD - £219
- MPEG FMV VIDEO CD PLAYBACK CARD £175 *(only fits 630 models without a DOS Card)*
- D2 FM RADIO TUNER Only.. £59
- APPLE INTERNET CONNECTION KIT - £47

FOR PERFORMA 5400 AND 6400 MODELS ONLY

FOR 5400/6400s

- VIDEO-IN CARD £69
- VIDEO-IN TV TUNER CARD £129
- COMMS SLOT II ETHERNET CARD £75
- 256k LEVEL 2 CACHE CARD £75

POWERMACOPTIONS

Add extra Power to your PowerMac...	
256k Cache DIMM (7500/8500/9500)	£76
512k Cache DIMM (7500/8500/9500)	£97
Apple RISC 604, 120MHz U/G (7500/8500/9500)	£425
Apple RISC 604, 132MHz U/G (7500/8500/9500)	£638
Apple 486, 66MHz DOS Card	£169
Apple 586, 100MHz, 8Mb DOS Card	£489
Apple Pentium 100MHz, 8Mb DOS Card	£610
Apple 3D Accelerator Card & 3D World Bundle	£279

4400 Memory Upgrades

CALL GH FOR NEW EDO DIMM RAM UPGRADES TO FIT THE POWERMAC 4400 RANGE... 8Mb, 16Mb, 32Mb, 64Mb etc.

If you can't visit us personally, why not ask for an Application Pack for a convenient, flexible GH BUDGET ACCOUNT CARD. No deposit and repayments over convenient periods can be arranged by mail. Once established, you can purchase with your new card and leave existing credit card limits intact.

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GH PRICES... All UK and EC customers please add VAT at the standard rate of 17.5% to all prices. UK overseas Armed Forces Personnel may be exempt VAT - please ask for details.

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Written details available on request. §Subject to status and an £18 arrangement fee. Please contact us prior to visiting for Easy Application requirements.

GH BUSINESS FINANCE FACILITIES...

BUSINESS FINANCE : Weekly rates shown exclude VAT and are based on a fixed cost 3 Year Apple Commercial Credit Lease payable quarterly after an initial deposit payment. Available to all businesses (including recently established) making a minimum total purchase from GH of £750 - subject to status. FULL Details available on request.

Manufacturers' specifications and GH prices are correct at time of going to press; however, they may fluctuate and we therefore reserve the right to amend them - please confirm prices before ordering. This advertisement is an invitation to treat, not an offer to sell. Goods are not supplied on a trial basis. All transactions are subject to Harwood's Terms and Conditions of Sale, a copy of which is available on request. E.&O.E.

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GH Budget 14" Multisync Monitor (.28)	£189
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Apple 14" MultiScan (.28)	£229
Apple 15" Multiscan (.28)	£289
Apple 15" AV Multiscan (.28)	£359
Apple 17" 1705 TCO MultiScan (.26)	£499
Apple 17" 1710 TCO Trinitron MultiScan (.26)	£679
Apple 17" 1710AV TCO Trinitron MultiScan (.26)	£749
Apple 20" Trinitron MultiScan II (.26)	£1299
NEC 15" CromaClear Multisync (.25)	£399
Mitsubishi 17" Diamondtron Multisync (.26)	£499
Mitsubishi 21" Diamondtron Multisync (.30)	£999
Sony 15" SX1 Trinitron Multisync (.26)	£299
Sony 15" SF2 Trinitron Multisync (.26)	£339
Sony 17" SF2 Trinitron Multisync (.26)	£519
Sony 17" SE2 Trinitron Multisync (.26)	£779
Sony 20" SF2 Trinitron Multisync (.26)	£1099
Formac 17" Diamondtron F17 FST Multisync (.26)	£399
Formac 17" ProNitron F17 400 Multisync (.26)	£499

WHILE STOCKS LAST! (Apple 14" MultiScan)
WHILE STOCKS LAST! (Apple 15" Multiscan)
PRICE CRASH! (Formac 17" Diamondtron F17 FST Multisync)
PRICE CRASH! (Formac 17" ProNitron F17 400 Multisync)

GH Prices INCLUDE Adaptors for non Apple Monitors FREE!

Ask us about VRAM (Video RAM) for your Mac...
to give your monitor higher resolutions, more colours etc.

KEYBOARDS

Third Party Design Keyboard	£40
Apple Design Keyboard	£59
Apple Extended Keyboard	£89
Apple Adjustable Keyboard	£139

PRINTERS

LASERS

Apple Personal Laser 300 - 300dpi Mono	£415
Apple Laser 4/600PS - 600 dpi Mono	£599
Apple LaserWriter 12/640PS	£1099
Ask about 'Trade In' Offers on 12/640PS!	
Apple Laser 16/600 - 600 dpi Mono	£1399
Apple LaserWriter 12/660PS Colour	£4449
HP LaserJet 6MP - 600 dpi Mono, 3Mb RAM, 8ppm With both Parallel and Local Talk Connections	£649

INKJETS

Apple StyleWriter 1500 Colour 720 x 360dpi	£209
Apple StyleWriter 2200 Colour 720 x 360dpi	£269
Apple StyleWriter 2500 Colour 720 x 360dpi	£289
Apple StyleWriter EtherTalk Kit	£145
Canon BJC4550 Colour - A3 Mac or Amiga	£309
Epson Stylus Colour 500 720 x 720dpi	£209
Now includes Epson 'T' Shirt Printing Factory Whilst Stocks Last!	
Epson Stylus Pro Colour - A4 720 x 720dpi	£314
Epson Stylus Pro XL+ Colour - A3 720 x 720dpi	£829
Epson Stylus Pro POSTSCRIPT RIP	£175
HP 660C DeskWriter Colour 600 x 300dpi	£209
HP 870Cxi DeskWriter Colour 600 x 600dpi	£329

PRICE CRASH! (Epson Stylus Pro)

PowerPrint Use parallel printers with Macs	£79
StyleScript Adobe PS RIP for Apple Colour SWs	£75

PRINTER CONSUMABLES

StyleWriter... I/II Port/1200/1500...	Black Cartridge	£14
StyleWriter 1500	Colour Cartridge	£23
StyleWriter 2500	Photograde Kit	£47
	Premier Plus Paper	£29
	Photograde Ink Cartridge	£25
StyleWriter 2400/2500	Black Cartridge	£26
	Colour Cartridge	£33
	Black Ink Tank	£7
	Colour Tank	£13
Colour StyleWriter Pro	Black Hi-Capacity	£10
	C, M, or Y Cartridge (ea.)	£10ea.
	CMYK - 4 Colour Set Cart.	£38
Epson Stylus 500	Black Cartridge	£15
	Colour Cartridge	£24
Epson Stylus II	Black Cartridge	£14
	Colour Cartridge	£20
Epson Stylus A4 Paper	360dpi Paper, 100 Sheets	£12
	720dpi Paper, 100 Sheets	£16
	Transfer Paper, 10 Sheets	£13

ALL HP PRINTER CONSUMABLES	£CALL
Genuine Apple Toner Cartridges...	
For Apple LaserWriter LC, SC, NTR	£55
For Apple LaserWriter 300, 320, 4/600	£45
For Apple LaserWriter 360	£69
For Apple LaserWriter 16/600	£85
For Apple LaserWriter 12/640	£89
Please call for Colour LaserWriter Accessories	£Call

CD ROM DRIVES

D2 CD 1200e Eight Speed inc. Cables*	£189
Apple CD 600i Plus Internal Quad Speed	£189
(Requires fitting kit - please call for details/price)	
Micronet CD1200e Inc. 5 Titles	£209

SCANNERS

Apple Color One 600-27 Scanner	£349
Apple Color One 1200-30 Scanner	£549

UMAX

Model	Photoshop	Trans Adap	Price
VISTA S6e	✘	✘	£199
VISTA S6e	LE	✘	£219
VISTA S6e	FULL	✔	£649
VISTA S12	✘	✘	£399
VISTA S12	LE	✘	£419
VISTA S12	FULL	✘	£519
VISTA S12	FULL	✔	£839
UMAX Vista Transparency Adaptor			£325
TextBridge bought with any Umax scanner			£39

PRICE CRASH! (VISTA S6e)
PRICE CRASH! (VISTA S6e)
NEW (VISTA S12)
PRICE CRASH! (VISTA S12)
PRICE CRASH! (VISTA S12)
PRICE CRASH! (UMAX Vista Transparency Adaptor)

MICROTEK

NEW

Model	Software	Trans Adap	Price
ScanMaker E3	Omnipage	✘	£229
ScanMaker E3	Photoshop LE/Omnipage	✘	£249
ScanMaker E6	Omnipage	✘	£349
ScanMaker E6	Photoshop LE/Omnipage	✘	£369

PRICE CRASH! (ScanMaker E3 Photoshop LE/Omnipage)
PRICE CRASH! (ScanMaker E6 Omnipage)

EPSON

Model	Photoshop	TextBridge	Price
GT 5000	LE	✔	£279
GT 8500	LE	✔	£449
GT 8500	FULL	✘	£549
GT 9500	LE	✔	£549
GT 9500	FULL	✘	£659
Epson Transparency Adaptor (except 9500)			£399

PRICE CRASH! (GT 8500)
PRICE CRASH! (GT 9500)
WHILE STOCKS LAST! (GT 9500)

PAPERPORT

Visioneer Paperport VX (inc. WordScan OCR S/W)	£239

FREE SCSI ADAPTOR
WITH ALL VISIONEER PAPERPORT VX MODELS WORTH... £49.00

INC. NEW VERSION UPGRADE

SCSI Adaptor for Paperport VX	£49
4 Port Juggler for Paperport/Modems	£89

CAMERAS

Casio QV-10 Digital - 320x240	£309
Casio QV-10 Digital - 640x480	£429
Apple QuickTake 150 inc. Mac/PC Kit	£399
QuickTake 100 to 150 Upgrade Lens	£13
Kodak DC20 Digital 1Mb Inc. Kai's GOO!	£159
Kodak DC25 Dig. 2Mb, PCMCIA, LCD, Kai's GOO	£319
Kodak DC40 Digital 4Mb, Flash, 99 Images	£399
Kodak DC50 Digital 1Mb, PCMCIA, 3 x Zoom	£579
Connectix QuickCam	£79
Connectix QuickCam Colour	£149

PRICE CRASH! (Casio QV-10 Digital - 320x240)
NEW (Casio QV-10 Digital - 640x480)
PRICE CRASH! (Casio QV-10 Digital - 640x480)
Inc. Kai's GOO! (Kodak DC20 Digital 1Mb)
PRICE CRASH! (Kodak DC20 Digital 1Mb)
PRICE CRASH! (Kodak DC25 Dig. 2Mb, PCMCIA, LCD, Kai's GOO)
PRICE CRASH! (Kodak DC40 Digital 4Mb, Flash, 99 Images)
PRICE CRASH! (Kodak DC50 Digital 1Mb, PCMCIA, 3 x Zoom)
PRICE CRASH! (Connectix QuickCam)
PRICE CRASH! (Connectix QuickCam Colour)

STORAGE

D2, Quantum, 2.1Gb Internal Hard Drive	£299
D2, Quantum, 4.0Gb Internal HD (Atlas AV)	£775
D2, Quantum, 1.2Gb External Hard Drive	£279
D2, Quantum, 2.1Gb External Hard Drive	£339
EZ135 Cartridge	£14
EZ230 Drive - inc. Cartridge & Cable	£199
EZ230 Cartridge	£20
EZ230 Cartridge, 6 PACK	£108
IOMEGA 100Mb ZIP Drive - inc. Cartridge & Cable	£125
ZIP Cartridge - 100Mb	£11
ZIP Cartridges - 100Mb, 6 PACK	£54
D2 JAZ Drive Inc. Cartridge & Cable	£299
D2 JAZ Drive Inc. 3 Cartridges & Cable	£469
IOMEGA JAZ Drive Inc. Cartridge & Cable	£339
JAZ Cartridge - 1Gb	£65
JAZ Cartridges - 1Gb, 3 PACK	£189
Nomai 540Mb 3.5" Syquest - inc. Cable/Cartridge	£249
D2 200Mb Syquest Drive - inc. Cable/Cartridge	£349
Syquest Cartridge - 44Mb	£28
Syquest Cartridge - 88Mb	£30
Syquest Cartridge - 200Mb	£45
Syquest Cartridge - 270Mb	£34
D2 230Mb Optical Drive - inc. Cartridge	£399
Optical Disk - 230Mb	£20
Pinnacle 2.6Gb Optical Drive inc. Cartridge & Cable	£849
SONY CD WRITER Double Speed - Write, Quad Speed Read including Toast or Gear Software	£499
YAMAHA CD WRITER Quad Speed - Write, Quad Speed Read including Toast or Gear Software	£649
PINNACLE RCD 5040 CD WRITER inc. Software	£649

WHILE STOCKS LAST! (D2, Quantum, 1.2Gb External Hard Drive)
NEW (JAZ Cartridges - 1Gb, 3 PACK)

WACOM TABLETS

PRICE CRASH!

Artpad II with Dabbler (New Stylus)...	£119
Ultra Pad... A5 - £249, A4 - £349, A3 - £549	

COMMS

Apple 28.8 GeoPort II FOR POWERMACS	£109
Apple Personal COMMs Solution - 14.4 (For 630/5200/5260/5300/5320/6200/6300/6320, see 'Performa Options' below left)	£109
Apple Personal COMMs Solution - 28.8 (For 630/5200/5260/5300/5320/6200/6300/6320, see 'Performa Options' below left)	£179
Motorola 28.8 3400 Pro V34	£99
Global Village TelePort Gold II 14.4 BABT	£49
Global Village TelePort Internet 9 Pin Serial 33.6 BABT	£129
Global Village PowerPort Gold PCMCIA 14.4 BABT	£189
Global Village PowerPort Platinum PCMCIA 28.8 BABT	£239
US Robotics Sportster 33.6 V34	£149
US Robotics 28.8 Mac XJACK PCMCIA	£149
FAX Friend Auto switch between FAX/Voice calls	£49
VocalTec Internet Voice Phone for Macs	£39
FREE INTERNET access software via Compuserve with ALL Modems!	

PRICE CRASH! (Motorola 28.8 3400 Pro V34)
NEW (Global Village TelePort Internet 9 Pin Serial)
NEW (FAX Friend)
NEW (VocalTec)

RAM UPGRADES

PRICE CRASH!

SIMMs... 4Mb £20, 8Mb £32, 16Mb £69, 32Mb £129, 64Mb £289	
DIMMs... 4Mb £21, 8Mb £32, 16Mb £63, 32Mb £129, 64Mb £249	
Memory Prices Fluctuate Daily, Call GH FIRST!!!	

SOFTWARE

Corel Draw Suite (Corel Draw + Word Perfect)	£279	M.Y.O.B. Accounts	£149
		MacMoney	£62
Corel Draw Suite UPGRADE	£99	Complete After Dark CD	£34
Quark Xpress 3.3	£649	Apple PC Exchange	£39
Adobe Illustrator 6	£279	Apple System 7.5.3 - CD/3.5"	£59
Adobe Photoshop 4.0	£399	Norton Utilities 3.2	£74
Adobe Collection	£549	SoftWindows 3.0 - CD/3.5"	£209
KAI's Power Tools 3.0	£95	SoftWindows '95 - CD	£249
KPT Vector Effects	£95	Conflict Catcher	£52
KPT Power Photos 1, 2 or 3	£95ea.	VIREX - Anti Virus	£59
KPT Convolver	£95	SAM	£54
KPT Bryce II	£139	SAM (Inc. Updates for 1Year)	£109
KAI's GOO	£42	RAM Doubler 2.0	£38
Freehand 5.5	£319	Speed Doubler	£38
Claris Works 4	£94	RAM & Speed Doubler Pack	£54
Claris Works to MS Office u/g	£179	Stuffit Deluxe 4.0	£66
Claris E'M@iler	£42	Hypercard 2.3.1	£94
Claris Draw	£95	Let's Keep It Simple - S/Sheet	£98
Claris Impact	£95	Creative Writer & Fine Artist	£39
Filemaker Pro 3	£159	Encarta '97	£39
Claris Home Page	£69	Groliers Ency. Science Fiction	£30
Microsoft Office 4.2	£359	Actua Soccer	£25
Microsoft Word 6.0	£245	Please call and ask for any	£CALL
Microsoft Excel 5.0	£245	Mac software not listed!	

NEW (Actua Soccer)

SPECIAL OFFER... WHILE STOCKS LAST!
DR. SOLOMON'S ANTI VIRUS TOOLKIT
INCLUDING 4 QUARTERLY UPGRADE SUBSCRIPTION..... £CALL!

MAC ACCESSORIES

Apple Design Speakers II	£49
Sony PC21 Speakers	£29
Apple Mouse II	£28
Kensington Turbo Mouse V5	£68
Kensington Thinking Mouse	£51
MacAlly Mouse	£17
MacAlly Joystick	£32
MacAlly Game Pad	£22
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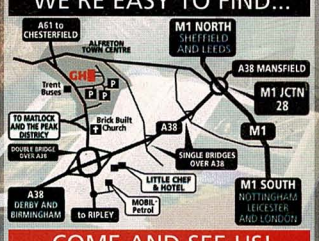

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MACFORMAT
ISSUE 47 ■ FEBRUARY 1997

The Finder

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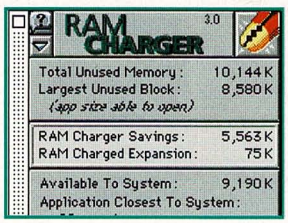
The Performa 5400/180 – it's black and bold. Page 78.


RAM CHARGER 3.0
Total Unused Memory: 10,144K
Largest Unused Block: 8,580K
(app size adds to open)
RAM Charger Savings: 5,563K
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Available To System: 9,190K
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Can *RAM Charger* banish those memory blues? Page 90.

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Test your driving skill and daring in *Nascar Racing*. Page 113.

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The authoritative buyer's guide, with advice to help you choose wisely, hot product news, and even an in-depth report on *covering* your Mac...

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Pick up the best bargains in our Mac marketplace. Software, hardware and everything in between!

Win! Win! Win!

Win a Formac four-CD ProChange drive 146

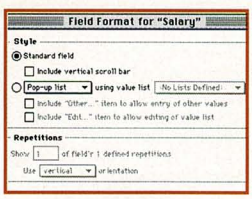
Bored with swapping over all those CDs? Win a top eight-speed CD-ROM drive that holds up to *four* CDs at once and automatically swaps between them! It's worth nearly £500 and we have *two* to be won!

How to...

Use QuickTime 46

ON THE CD

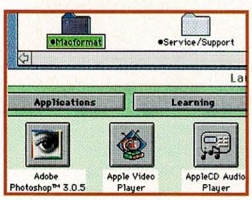
It's not just small grainy movies! QuickTime has come a long way, and in this new series we show you how to get the most out of it!



Use FM Pro 3 50

ON THE CD

Continuing our *FileMaker Pro 3* series, we show you how to Find precisely what you're looking for. All the files you need are on the Cover CD, including a demo of *FM Pro 3*.



Use the Launcher 57

We asked you to send us *your* Mac tips – and here are some of them. MACFORMAT readers explain how to get the best out of the Launcher.

Regulars

Welcome to MACFORMAT 7

Everything you wanted to know about MACFORMAT but were afraid to ask.

Web highlights 16

The Mac sites that help you to see into the future.

News 18

All the latest from the Mac scene: Apple founder Steve Jobs returns home as Apple buys NeXT and plans a new OS; Katz's Pippin due in the UK; a world of cheaper computers, and new PowerMac is imminent.

What's New: product news 24

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Classic System Crew 141

"Interact" with the Crew, as they test our latest hardware.

Back Issues 144

If you did miss an issue, here's how to complete the set!

Next Issue 145

Be patient: there's just four weeks to wait for the next one.

State of the Arts

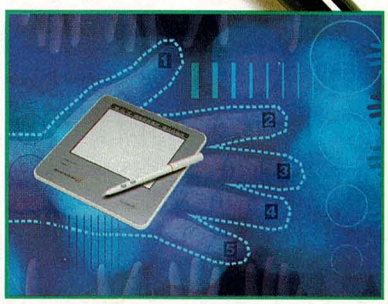
Art software page 30

The Macintosh is *the* computer when it comes to art and design – now more than ever, with fantastic new software and brilliant upgrades appearing almost every day. We test the brand new versions of well-known favourites *Photoshop* and *FreeHand*, then assess their rivals in both bitmap paint packages and vector drawing programs, and delve into the world of 3D, including previews of the hot new 3D suites due soon, from *LightWave* to *Cinema 4D*.

Input devices

Having a grey day? page 60

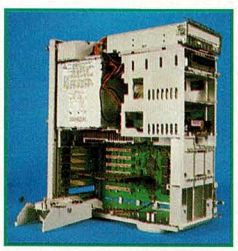
You don't have to settle for a plain grey, basic-and-boring Mac keyboard and mouse – there's an amazing array of alternative input devices out there! We test keyboards, mice, trackballs and graphics tablets, and even ask an ergonomic expert to identify the designs that could be bad for your health!



Problems solved

The top ten questions page 52

Being ever aware of your needs, we went to Apple's Assistance Centre and asked: "What are the ten most frequently asked Mac questions?"



Here they are, with the answers you've been searching for. So whether you're fretting over System software, your Mac keeps crashing, or you want to connect to the Internet, all is answered right here.

HTML editors

Web page creators page 84

The Internet is teeming with a huge variety of Web pages. But how easy is it to make your own presence felt and create your own Web page? We test five HTML editors that aim to help you do just this – from bare-bones *BBEdit 4* to *golive Pro 1.1*, *Claris HomePage 1.0*, *HoTMetaL Pro 3* and *Adobe PageMill 2.0*. Which will help you get weaving?

MACFORMAT Cover Discs

MACFORMAT is available in your choice of a CD-ROM or a high-density floppy disk edition every issue:

ON THE CD

This logo in the mag means programs on the CD.

Your Cover CD-ROMs 8

Over 1,200Mb on two CDs *(UK and Europe only)*, featuring *xRes 2.0 SE*, a *complete*, fully working image-editing, painting and image-compositing suite. Plus 21 top graphics demos, and on the regular disc, exclusive demos of *Picasso* and *Sheila Rae the Brave*, as well as *mTropolis*, *Nascar Racing*, Web page creators and even the Simpsons, 100Mb of the latest shareware from the Net, plus everything below.

xRes 2.0 SE **– not a demo, not save-disabled, yours complete and for free!**

Your Cover Disk 12

Create fun films with *Multimedia Animation Maker;* choose a file-finder with *FindFile Chooser* and then sort it with *File Buddy;* and get addicted to top game *Breaker.* Plus: great utilities and fun icons!

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We put keyboards, mice, trackballs and graphics tablets though their paces. Find out what's on offer and what would suit your needs best.

Agfa scanners 72
Two new scanners, the StudioStar and the SnapScan on test. See how they measure up.

Apple Performa 5400/180 Family Mac 78
It's certainly a different Performa, with its sleek black exterior, but how does it perform?

Umax Apus 2000/166 79
A Mac clone that's both fast and affordable: could a revolution soon be upon us?

Apple LaserWriter 12/640 PS 80
See how Apple's latest laser printer fares.

Productivity

HTML editors 84
The World Wide Web is a wonderful thing, but how easy is it to actually create Web pages *yourself?* We put five HTML editors to the test – and put you in the picture!

RAM Charger 3.0 90
Wishing, longing, *desperate* for more RAM, less memory fragmentation, a more stable Mac? This inexpensive little utility could be the answer!

Music: Digital Performer 96
One of the USA's major sequencer / digital audio programs – will it hit the right note over here?

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ON THE CD The latest low-cost and no-cost software, hand-picked from the Internet.

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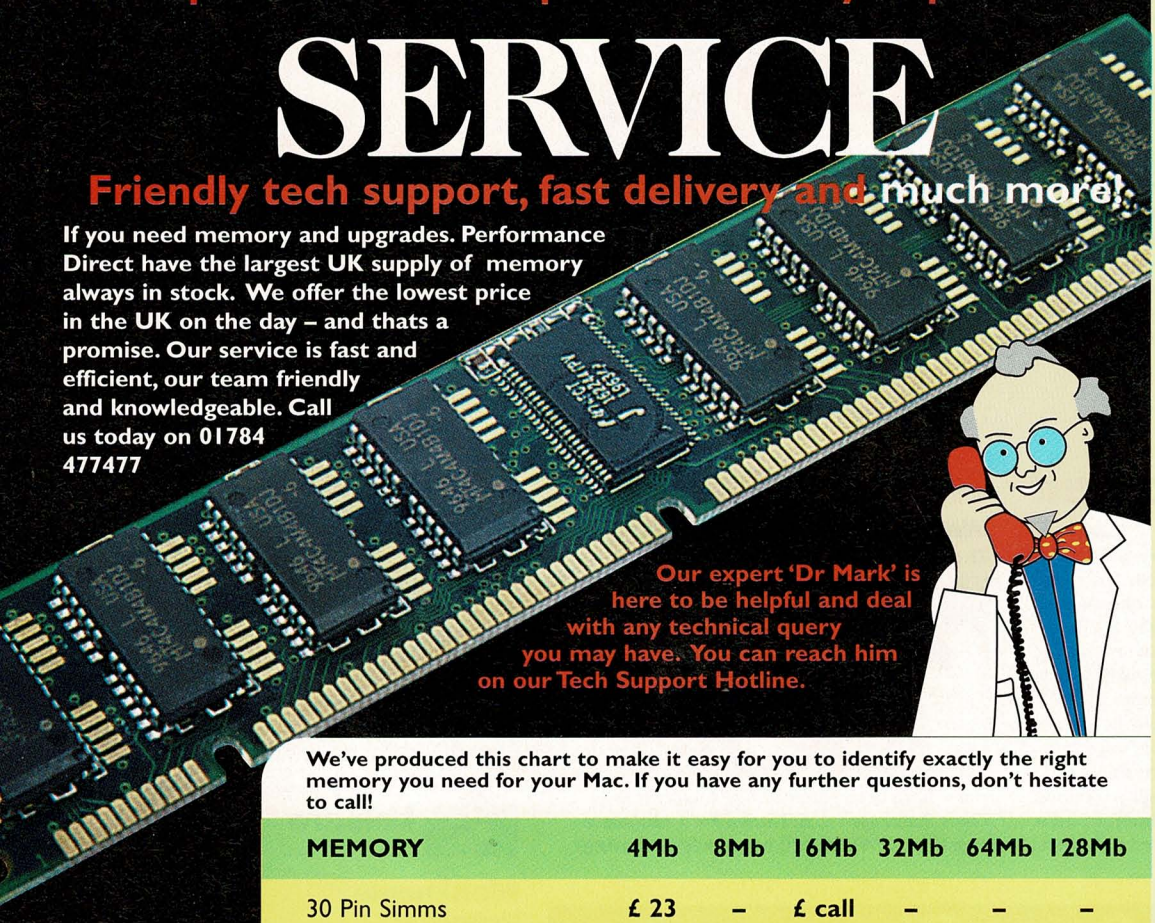

Our expert 'Dr Mark' is here to be helpful and deal with any technical query you may have. You can reach him on our Tech Support Hotline.

We've produced this chart to make it easy for you to identify exactly the right memory you need for your Mac. If you have any further questions, don't hesitate to call!

MEMORY	4Mb	8Mb	16Mb	32Mb	64Mb	128Mb
30 Pin Simms	£ 23	–	£ call	–	–	–
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168 Pin EDO Dimms	–	£ 49	£ 89	£ 149	£ 159	–
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PowerBook Duo
PowerBook 150
PowerBook 5300 Series
Quadra 900, 950
Quadra 800, 840AV, Workgroup Server 80, 6150, 8150, 9150
Workgroup Server 95
LC, LCII, Performa 200, 400, 405, 140, 430
IICX
IICI
II FX
II, IIX
IIVX, Performa 600, 600CD
IISI
LaserWriter Select 300
LaserWriter Select 310
LaserWriter Select Pro 810
Colour LaserWriter Select NTR
LaserWriter Select NTX, NTX-J
LaserWriter Select Pro 600, 630
LaserWriter Select 16/600PS
LCII, LC475, LC520, LC575, LC630
Centris 610, 650, 660AV
Performa 450, 460, 466, 467, 475, 476
Performa 550, 575, 577, 578, 630, 631CD, 635CD, 636CD, 640CD
Performa 5200CD, 5215CD, 5300, 5320
Performa 6200CD, 6205CD, 6214CD, 6216CD, 6218CD, 6220CD, 6230CD, 6300CD
Quadra 605, 610, 630, 650, 660AV
Workgroup Server 60, MAC TV
PowerMac 6100/60, 7100/66, 8100/80

PowerMac 6100/60, 6100/66, 6100/66AV, 7100/66, 7100/66AV, 7100/80, 7100/80AV, 8100/80, 8100/90, 8100/100, 8100/100AV, 8100/110
Performa 6110CD, 6112CD, 6115CD, 6117CD, 6118CD
PowerMac 7200, 7500, 7600, 8200, 8500, 9500
Pentium

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Welcome to MACFORMAT

Everything you wanted to know about MACFORMAT, plus what we'd be if we were graphics programs! (Er, hang on a sec...)

About our writers

Richard Hill

Our perennially-overworked News Editor is now also our Deputy Editor, as if he didn't have enough to do! If he were a graphics program, he'd have to be *Photoshop* – big, hungry, but perfectly capable of producing pretty impressive results if you could please just leave him to get on with the job...

Lindsay Bruce

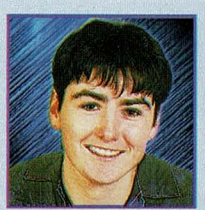
Our Technical Writer says he'd be *Debabelizer,* "because with my grasp of technical issues (yawn) I could convert any file into a usable format. I'd strip away uncertainty and boil the jargon down to one simple question: what format would you *like?* Now if there was just someone who could do the same for those damn BinHex, UUencoded and .ZIP files downloaded from the Internet...!"

Derek Smith

If our company technical expert and roving reporter had to be an applications package, he reckons he would like to be his favourite program, *Bryce.* That's probably because he lives in a fantasy world of his own and has a virtual social life, which, when viewed from any angle, is strictly two dimensional.

Rod Lawton

Our veteran all-rounder and "productivity software" specialist thought hard (you could almost hear the hard disk grinding away) before deciding that he'd be *MacPaint* – "simple, straight to the point, and if you can't explain it in one sentence I can't do it."



Tess Moran

Our acting Disc Editor says "If I was a Macintosh graphical package, I'd be the big beefy beast *xRes,* 'cos it sounds like 'X-rated' and is bright and perky but with lots of layers to strip away at." (Y'know, I think she's getting the hang of this *double entendre* stuff...)

Ian Waugh

Our music specialist's language at least can be pretty graphical, but as for applications, he says if he had to choose he'd be the latest version of QuickTime – but not just for its sound tracks or its extensive new MIDI music support. No, we reckon it'll be for the karaoke...

Alex Summersby

Editor

Welcome again to MACFORMAT, Britain's best-selling Macintosh (and Mac-compatible!) magazine.

With so many exciting new art and graphics programs appearing on the Mac, from *CorelDraw* to the forthcoming *LightWave 3D,* along with upgrades to most of the big guns of Mac creative software, there's a renaissance of enthusiasm for the Mac as a graphics machine. As well as reviewing two of the biggest upgrades this issue, we're seizing the occasion to assess the state of all the graphic arts, taking in bitmap art, vector drawing and the glamorous world of 3D.

Following up the graphics theme, we're testing two new scanners from Agfa, a new LaserWriter from Apple, and a whole range of input devices from graphics tablets to alternative mice and keyboards. We've got the first part of a new series about getting the most out of QuickTime, Apple's rapidly-evolving media player technology – oh, and a few other brilliant new products, like the inexpensive little utility that *will* give you more usable RAM and a stabler Mac.

Now, perhaps more than at any time in the last ten years, the Mac seems to be fulfilling all the promise it showed when it first burst onto the world with the first true graphical display, and the first graphical user interface, on a personal computer.

And with the news that Steve Jobs, co-founder of Apple and one of the original visionaries behind the Mac, is back at Apple (see News, page 18), who knows what the next year will see?

About MACFORMAT

MACFORMAT is for you, the person who actually works at a Macintosh keyboard. Every issue we bring you:

- **Tips, techniques and tutorials** covering the range of Mac applications, from graphics, spreadsheets and databases to music, multimedia and games.
- **Features** about exciting Mac developments and novel uses, accompanied by software on our Cover CD-ROM and floppy disk whenever possible, so you can discover what your machine can do and try things you mightn't have tried before.
- All the latest Mac-related **news,** plus all you want to know about the wider issues, the people behind the headlines and the stories behind the stories.
- Authoritative, independent **reviews** of interesting and affordable products, with clear buying recommendations.
- **Cover Disks and CD-ROMs** with demos so you can try software for yourself before you buy, useful utilities (specially chosen to complement features in the magazine), selected shareware programs, games, readers' contributions and much more.

Whether you're a veteran or a novice, MACFORMAT will help you get more out of your Macintosh, whatever you use it for.

A word about prices...

We try to ensure that all prices quoted in editorial pages in MACFORMAT are accurate at the time of going to press, and they all *include* UK Value Added Tax at 17.5%. However, this may not necessarily be the case with prices appearing in advertisements, so we recommend that you always contact advertisers before ordering to confirm prices and availability.

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xRes 2 SE complete!

Not a demo! Not save-disabled! It's true – MACFORMAT gives you a full high-res art program, *plus* 21 great graphics demos, artwork *and more!*

Macromedia's *xRes 2.0 Special Edition* is a complete, fully-working, high-resolution image-editing, painting and compositing suite. And it's *all yours* on this special bonus MACFORMAT graphics CD, courtesy of those lovely folks at Macromedia!

You can use *xRes* to create and edit your own images, with all the features you expect from a professional graphics application, including layers and alpha channels for control over complex images. It also enables you to blend colours from a huge range that includes Pantone colours. What's more, it has great functions like deformation and distortion, guaranteed to give you hours of fun!

You'll need a Mac with a 68040 processor or a PowerMac, 8Mb of RAM (16Mb recommended), and at least 10Mb free hard disk space (500Mb recommended for using "*xRes* mode", which enables you to manipulate large images with astonishing speed and in less RAM). There are sample images, tutorials and on-line help on the CD to help you get started!

And that's not all....!

- **ClarisDraw 1.0Bv1 demo**
  Save-disabled trial version of this popular drawing package from Claris. (**Illustration** folder)
- **Color It! 3.2 demo**
  Save-disabled version of this great image-editing program from Micro-Frontier. Requires System 7.0. (**Image Editing** folder)
- **CorelDraw 6 Demo**
  Save-disabled version of the hot new drawing package from Corel. System 7.5.3 recommended. (**Illustration** folder)
- **Dabbler 2.0 Tour**
  Walkthrough tour of this natural media paint package from Fractal Design. (**Image Editing** folder)
- **DesignWorkshop 1.1**
  Save-disabled version of the CAD package from Strata. System 7 required. (**3D Graphics** folder)
- **Electric Image preview**
  Self-running preview of this great 3D package. (**3D Graphics** folder)
- **Expression Demo**
  Save-disabled version of this new illustration package from Fractal Design. (**Illustration** folder)
- **Extreme 3D 1.0**
  Save-disabled version of this illustrious 3D graphics package from Macromedia. (**3D Graphics** folder)
- **form•Z RZ Demo**
  Save-disabled version of this 3D modelling-rendering package from auto des sys. (**3D Graphics** folder)
- **FreeHand 7**
  Save-disabled version of the latest upgrade of the top illustration program from Macromedia (reviewed on page 36). (**Illustration** folder)
- **Infini-D 3.5 Demo**
  Save-disabled demo of the new version of Specular's lovely 3D package. (**3D Graphics** folder)
- **MiniCad 6.0.1 Demo**
  Save-disabled version of this popular Computer Aided Design package from Strata. (**3D Graphics** folder)
- **Painter 4.0**
  Save-disabled trial version of the ground-breaking natural media paint package from Fractal Design. System 7.5.3 recommended. (**Image Editing** folder)
- **PhotoFix Demo**
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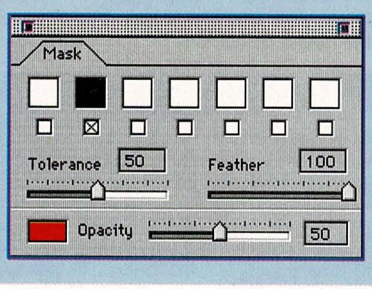
  Save-disabled trial of this image-editing package from Byte by Byte. (**3D Graphics** folder)
- **Sketch! 2.0**
  Save-disabled demo of this popular illustration package distributed by Gomark. (**Illustration** folder)
- **Specular Collage**
  Save-disabled version of Specular's specialised image-compositing program. Requires a PowerMac. (**Image Editing** folder)
- **Stencil It! Demo**
  Save-disabled try-out of this illustration package from Kaetron. (**Illustration** folder)
- **3D World 2.0 Demo**
  Save-disabled version of the easy-to-use 3D program. Requires PowerMac and QuickDraw 3D. (**3D Graphics** folder)
- **Tree Professional 3.0**
  Save-disabled trial of this specialised horticultural graphics package from Strata. (**3D Graphics** folder)
- **xRes 3.0**
  Save-disabled version of the latest upgrade of Macromedia's image-editing package. (**Image Editing** folder) *(Like it? Upgrade to v3.0 at the special price opposite!)*

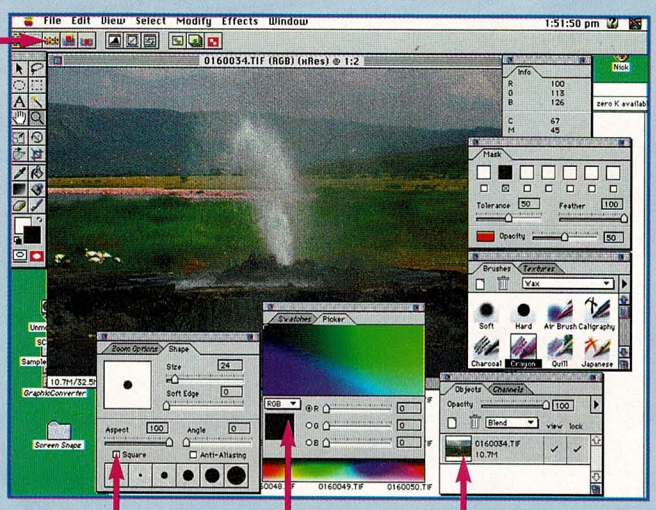
PLUS Readers' artwork and video clips, *Shockwave*, the latest version of QuickTime and much more!

Get started with xRes

Mask Window
Use this for advanced masking options. This enables you to play with up to seven colours to determine the mask area. You can also specify the mask effect of an entire document.



The menu bar enables you to perform a multitude of tasks, including the most common selection commands – such as selecting an entire image, add, subtract, invert or discard a selection, and toggle the visibility of a selection.

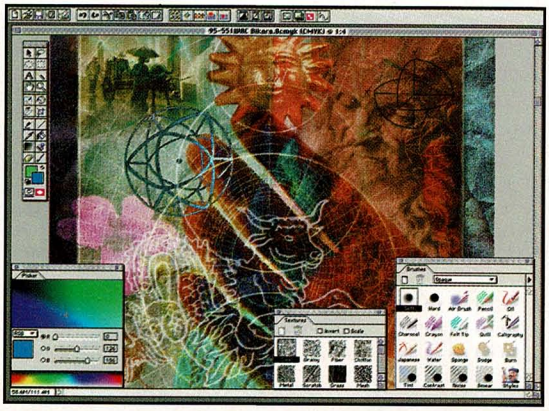


The Shape Inspector controls the size, shape, and soft edge of the brush.

The Colour Picker enables you to choose from the widest range of colours, including Pantone colours.

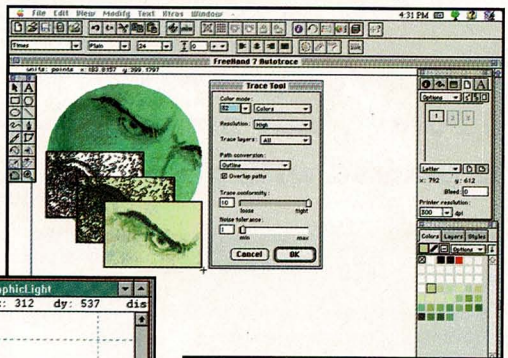
The Object Window enables you to change the opacity, the Blending Mode, and the visibility of an object. It also enables you to lock objects in place or delete them.

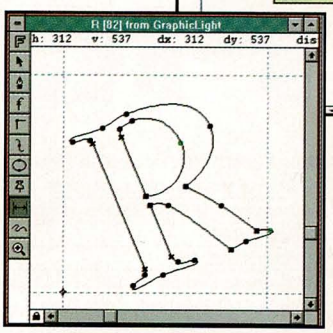
Special bargain upgrade offers!

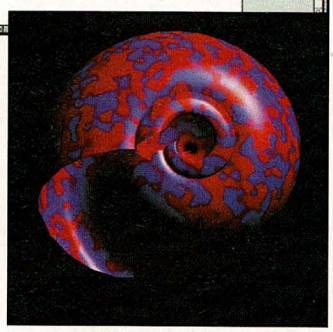


The latest version of *xRes*, or the complete *FreeHand Graphics Studio 7.0* bundle, can be yours at a very special price!

(The offers on this page are valid in the UK only)

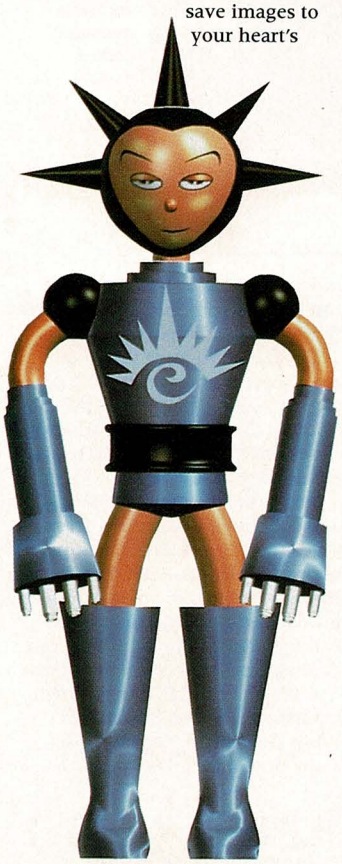






Upgrade to the latest *XRes 3.0* for just £149, or to the complete *FreeHand Graphics Studio 7.0* for only £249!

The Special Edition version of Macromedia's *xRes 2.0* on your special bonus Cover CD is a fully-working high-res image editing program that enables you to import, create, manipulate and save images to your heart's content. The full version of *xRes 3.0* boasts everything that makes version 2.0 such a fabulous package, plus a whole lot more. Now here's your chance to upgrade to this very latest version at a very special price, courtesy of Macromedia!



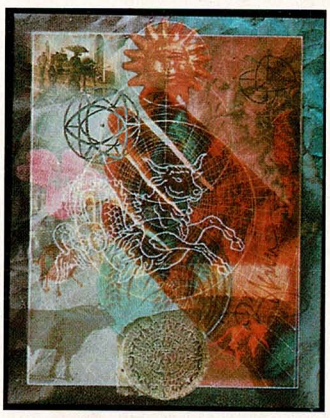
In addition to the creative tools and cutting-edge high-res composition features, *xRes 3.0* offers Shockwave support, enabling you to publish and view Shockwave images form the Net without having to download the entire image. *XRes 3.0* also enables you to open and edit files from other graphics packages, including *Photoshop* files. Add a whole load of extras including libraries of textures and filters, plus an enormous selection of high- and low-resolution photography for you to practise your graphics skills upon, and you'll agree that *xRes 3.0* is the ultimate package for high-quality image manipulation.

So how much would you expect to pay for a package like *xRes 3.0* – £500? £300? With this special offer from Macromedia, you can upgrade to the new *xRes 3.0* for just £149!

A whole Graphics Studio

And that's not all! *XRes 3.0* is also part of Macromedia's *FreeHand Graphics Studio 7.0*, the complete graphics solution. Featuring four integrated 2D and 3D art editing packages for both the Internet and print, *FreeHand Graphics Studio 7.0* is an all-in-one professional suite containing the most powerful tools for print and Internet graphics, and it can be yours for a bargain price!

As well as *xRes 3.0*, it includes the new *FreeHand 7.0*, which enables you to produce high-quality vector images. There's also *Extreme 3D 2*, the powerful 3D modelling and rendering program for bringing VRML-compatible 3D to Web sites, print designs and multimedia, with 3D hardware support for workstation-level performance. Plus there's *Fontographer 4.1*, the industry standard font-creation tool. And to top it all off, *FreeHand Graphics Studio 7.0* comes with 10,000 clip art images, 500 TrueType fonts, 250Mb of high-res photography, and dozens of 3D models.



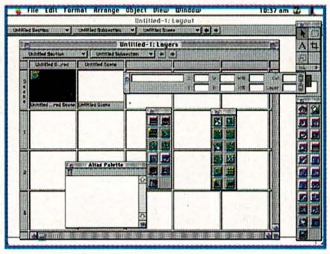
You could pay £450 or more for *FreeHand Graphics Studio 7.0*, or you could take advantage of this great offer from Macromedia and get yourself this professional bundle for the amazing price of just £249!

To take advantage of either of these fantastic offers, just call Macromedia's order hotline on 0181 358 5855 *(UK callers only)* – and tell 'em MACFORMAT sent you!

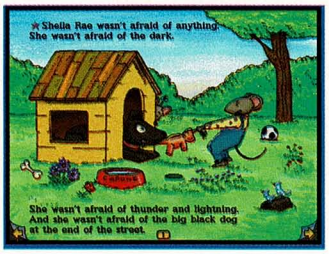
Call the Macromedia Order Hotline on 0181 358 5855

Picasso

Nascar Racing



mTropolis


Sheila Rae wasn't afraid of anything. She wasn't afraid of the dark.
She wasn't afraid of thunder and lightning. And she wasn't afraid of the big black dog at the end of the street.

Sheila Rae the Brave

Your CD-ROM

CDs are round and shiny. With a hole in the middle. Rather like a Polo™, only not quite as minty. Or edible. This month, our CD is packed with great demos and utilities. Tess Moran tells all...

Getting started

Welcome to the MACFORMAT 47 Cover CD. Here are some tips:

Some of the demos on the Cover CD require installation on your hard disk – they won't run direct from the CD. Many of these programs use an installer: once you've double-clicked on it, just follow the on-screen instructions and you should be fine. Even if there's no installer, it often helps to copy demos to your hard disk – at the very least they should run faster!

The icons we use on the CD folders help to give it a friendly atmosphere, but they do slow it down. Install *CDIconKiller,* which is in the Resources folder on the CD, if you want to speed things up.

If you have problems quitting any of the rolling demos on the CD, just press [command] Q and you should go back to the Finder. If this doesn't work, hit [command] [option] [escape] to Force Quit.

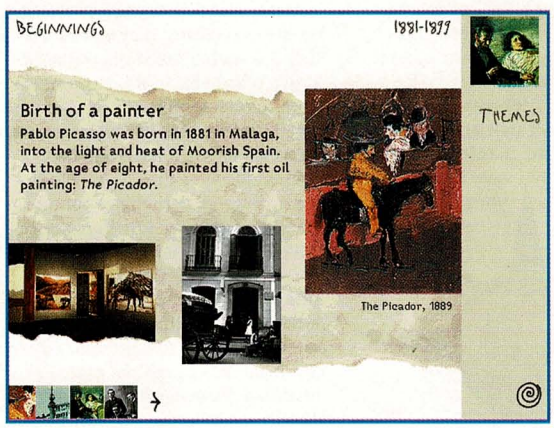
It couldn't be easier to install System Extensions and Control Panels – just drag them over your closed System Folder and your Mac puts them in the right place for you. Then all you need to do is Restart.

Look for this icon throughout the issue – it will point you towards the CD contents connected with the feature or review you're reading.

ON THE CD

Picasso

What is it? Fully interactive limited version of the complete program
Where you'll find it: Demos folder
Mac: 68040
PowerMac: Any
Requires: System 7.1, 5Mb RAM, 2x speed CD-ROM drive, QuickTime 2.1 (QuickTime 2.5 is included in the Resources folder on the CD)


BEGINNINGS
1881-1899
Birth of a painter
Pablo Picasso was born in 1881 in Malaga, into the light and heat of Moorish Spain. At the age of eight, he painted his first oil painting: *The Picador.*
THEMES
The Picador, 1889

Sample some of Picasso's lesser known works and learn about his life in this exclusive interactive limited version.

In last month's MACFORMAT, *Picasso* received a rating of 88% – a near classic. This month you get the chance to preview a fully interactive (limited) version of this excellent CD-ROM of "Picasso – the man, his works, the legend".

With *Picasso,* you can take a computerised stroll through a gallery of his best known works, plus gain a few insights into the man behind the paintbrush – and there are three main categories to click on.

Themes (not active in this version) introduces you to the main creative achievements of Picasso, including different mediums of art other than painting, such as ceramics, engravings and sculptures.

Notebook introduces you to the main periods of Picasso's life: in this limited version, "Beginnings", which spans the years 1881-1899 is the only active segment. And finally there is **Overview,** which introduces you to the best way of using the full product, guiding you through some sample sequences.

In addition to these three main areas there are two extra areas of interest – the Glossary and Index. Both can be accessed by clicking on the unwinding spiral at the far right of your screen. In the full version, the Glossary gives you more than 100 definitions of the main artists, artistic trends and techniques quoted within the CD-ROM. The Index throws up a plethora of images and introduces you to the two broad bands of Picasso's work, so you can explore his major works and others.

Colourful and informative, with entertaining QuickTime movies, this is a good taster of what is in store for you in the full product.

Visit Picasso's birthplace and meet his ma and pa and all his mates in this interactive tour of Picasso's life and works.

To Install

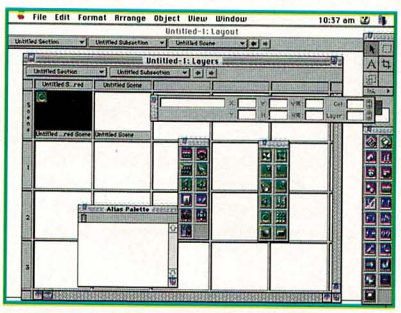
Picasso will run from the CD.

mTropolis

What is it? Save-disabled demo
Where you'll find it: Demos folder
Mac: PowerMac
PowerMac: Any
Requires: System 7.0, 6Mb RAM (for 8-bit colour), 8Mb RAM (for 24-bit colour), QuickTime 2.1 (QuickTime 2.5 is included in the Resources folder)

The new state-of-the-art multimedia authoring tool is *mTropolis* from mFactory. It has all the capabilities of Macromedia's *Director* but without the need for *Director's* complicated Lingo-scripting. *mTropolis* relies on a subject orientated drag-and-drop interface, making it easy to create complex animations.

To run *mTropolis*, open the **Editor/Player** folder from within the *mTropolis* demo folder and make your choice between the Mac or the PowerMac versions.

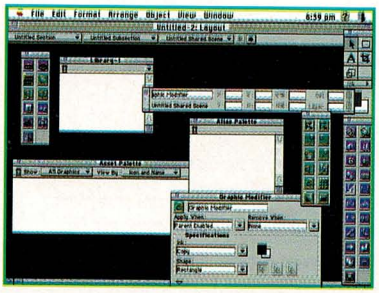


Your movie director career starts here with the great new multimedia creator.

Now you're ready to create a multimedia project – and there are three main building blocks to use. First you create an Element (the opening page will automatically open a scene element). The characteristics of this can be changed by double-clicking on the window itself. This brings up an information dialogue box that will enable you to change some of its most salient features.

The second step is to link this page to an object within the Asset Palette such as a PICT file, which can then be dragged straight onto the scene element. The third step is to drag your chosen object from the Asset Palette and edit its characteristics by dragging "modifiers" straight from the Modifier Palette (Menu Palette with green boxes) onto your object.

For example, to make a background transparent, you would drag the Graphics modifier from the green palette straight onto your object. If you then double-click on it, certain characteristics of your object can be edited. Other modifiers within the Green Palette enable you to add characteristics such as motion and sound. Once you have developed a string of these modifiers that reflect a specified sequence of multimedia actions (such as movement or sound), you can then store them for future use within Behaviour Modifiers (at the top left of the longest palette). You can then drag-and-drop these modifiers onto subsequent objects to repeat the same multimedia effects.



Create great multimedia animations with the flick of the wrist and a click of the mouse with *mTropolis*.

It is advisable to run the *mTropolis* demo (PowerMac) from within the main folder, which gives a walkthrough guide of the *mTropolis* environment and introduces you to the main features of this high-quality multimedia authoring package for the Macintosh.

To Install

mTropolis will run from the CD.

GoLive

What is it? Save-disabled demo
Where you'll find it: Web Page Creators folder
Mac: Any
PowerMac: Any
Requires: 4Mb RAM (Mac), 5Mb RAM (PowerMac), QuickTime 2.1 (QuickTime 2.5 is included on the CD)

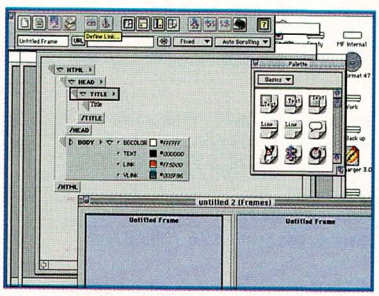
Golive, from Gonet, is the newest HTML editor for the Mac. It's one of the graphical Web page creators reviewed in our group test on page 84 this issue. *Golive* is simple to use, yet still supports some of the more advanced features of the best Web sites on the Internet, such as CGI scripting, server-side maps, forms, frames and Java applets.

You can access most of *golive's* features from the graphical menu bar and the Palette window box. *Golive* supports HTML comments, Java applets, *Netscape* plug-ins, QuickTime movies, QuickDraw 3D files and *Shockwave* (also included on this issue's bonus CD).. You can drag all of these from the Palette window, and also images, text and textual features such as lines.

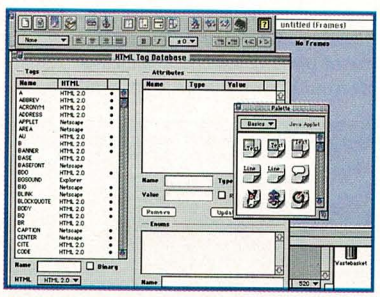
You can switch from the basic Palette window to the Forms palette, which offers drag-and-drop capabilities for text, password fields, submit, reset and radio buttons, check boxes and pop-up menus. From the menu bar, you can define a link and anchor it to another HTML page, create different sized frames, define lists and preview your page.

There are also other handy utilities such as the Outline Editor that can be found under the **Window** menu. This enables you to add enhanced HTML editing functionality to your normal editor, a tag database that holds a complete selection of HTML tags, and a gallery where frequently used images and text can be stored for use on multiple pages.

GoLive is beginner-friendly with its WYSIWYG interface, but will appeal to professional Web creators with its support for more advanced HTML features. (See also *Claris HomePage* on page 13.)



Weave your own Web page for the Internet with *golive*.



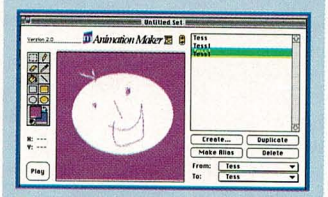
***Golive* and go Web crazy!**

To Install

Golive can be installed onto your hard disk. Please note that *golive* clashes with the *Aaron* Extension, so disable that before you run *golive*.

CD Index

Use this folder-by-folder guide to what's on the Cover CD this issue and just where you'll find it.



Create shiny happy people with *Multimedia Animation Maker*.

Demos
Atlasta video screen saver
Chiller Killers preview
Days of Rage demo
Living Books demo – Sheila Rae
mTropolis Demo
Picasso Interactive Demo
ProView 1.3 Demo
Simpsons Cartoon Studio Demo

Game Demos
Abuse
Caesar II
Changeling
Close Combat
Nascar Racing
Prime Target
Skullcracker
ZPC

Web Page Creator demos
BBEdit 4.0
BBEdit 4.0 Update
Claris HomePage 1.0
golive

HyperStudio Preview
Another chance to try out the easy-to-use multimedia authoring package, including a "Start Here" preview and extra demonstration files to show you what it can do.

Jonni Starr episode 2
The latest instalment in our exclusive new animated cartoon series.

Filemaker Pro 3.0 Tutorial
All the files you need to follow this issue's *FileMaker Pro 3* how-to on page 50, including sample database and save-disabled demo version of *FM Pro 3*.

MACFORMAT 47 Floppy
AnGST1.1
Breaker 1.5.0
CRSR v1.0
EjectDisk 2.1.0
File Buddy
FindFile Chooser 1.0.1 Folder
Menu Shade
Multimedia Animation Maker 2.0E
3D Control Panel Icons

Shareware Central
All the programs included in this issue's shareware reviews

CD Index (continued)

section – see page 116.
Blitz 1.1 ppc
Blitz v1.1 68k
Cassette Labeller 2.0
CD Labeller 2.0
Hamlet Quote Finder Demo
Organizer 2.5
Personal Search Page
PhotoFolio 1.0 Demo
Snapz Pro Installer
Snitch 2.1
Sys Compare 1.0.0
Ultimate Pool 1.0.1 ppc
Un Lucky Lotto 2.0.3

Shareware Plus
A further 81Mb of shareware, hot from the Internet.

Go fruit picking with Og and his friends in *Breaker*. Find it in the Floppy Disk folder of your CD.

Resources
Acrobat Installer 2.1
CDIconKiller 1.3.3
Disinfectant
DOCMaker SW v4.7
GraphicConverter 2.6
MacFormat CD Index (an up-to-date searchable database of past MF CDs, with Disk Wizard)
NewsWatcher
QuickTime 2.5
ResEdit
ShrinkWrap 2.1
SoftwareFPU 3.04
Sound Manager 3.2
StuffIt Expander

What is T3
Discover this innovative new magazine, giving you all the news on tomorrow's technology today. (In Acrobat format – install Acrobat reader from the Resources folder if you don't already have it.)

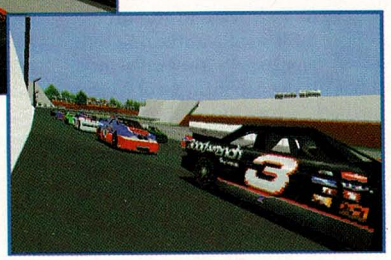
Readers' Corner
More contributions from talented MACFORMAT readers.

Play *Ultimate Pool* from the selection of shareware his month – and sharpen up your hustling skills.

Nascar Racing

Burn rubber – and a lot of other things too, if you're not careful, in this exciting racing game, with three great tracks to enjoy.

What is it? Three-track trial version
Where you'll find it: Games folder inside the Demos folder
Mac: PowerMac only
PowerMac: Any
Requires: System 7.1, 16Mb RAM, Sound Manager 3.1 (available in the Resources folder)



Be the next Nigel Mansell, only with a mouse (or a keyboard), with *Nascar Racing*.

This new car-racing game is reviewed this issue on page 113, and here's your chance to try it for yourself. In this trial version, you have the choice of three American race tracks – Charlotte, Martinsville and Sears Point – and you're racing against 19 computer driven cars (the full version contains 16 tracks and 31 computer driven drivers). To get started, simply double-click on the *Nascar Racing* icon and sit back while it loads up.

The first thing you'll want to do is set the controls – they default to mouse control, but a joystick is highly recommended if you have one, or you can set keyboard controls by selecting "modify" alongside all the controls. You are now ready to take your car and zoom around your chosen track at ridiculously high speed.

There is a choice of two driving modes (the full version has four). The first is **Pre-season Testing**, where you have the track solely to yourself and have the opportunity to practise your skills, before moving on to the meat of the game in **Single Race.** This takes you right through a whole racing weekend from practice to qualify to warm-up – and then finally to Race, which is the final race on Sunday.

You can escape from the track at any time during the race by pressing **[escape]**; you can also start a new session while on the track by pressing **[shift]** and **R**. This trial version limits you to three gallons of fuel and you are forbidden to make pit stops.

The full version of *Nascar Racing* supports some nifty features like two-player racing via AppleTalk, and supplies a paint kit, so that you can create your own cars. It's tricky to keep control of all that power at first, but that's why you've got those practice laps to start with!

To Install

Nascar Racing will run from the CD.

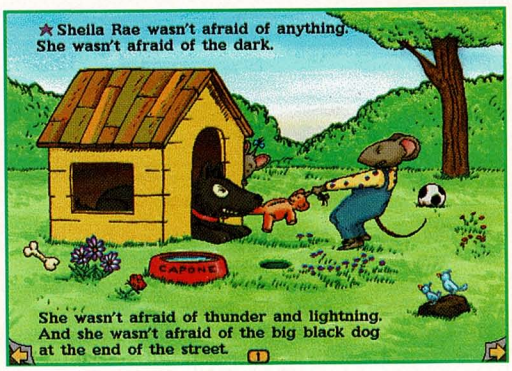
Sheila Rae

What is it? Limited interactive version of the full product
Where you'll find it: Demos folder
Mac: Any
PowerMac: Any
Requires: System 7.0, 4Mb RAM

This interactive storybook is the latest kids' multimedia title from Brøderbund, and here's your chance to see it for the first time. If you've had the pleasure of playing with *Grandma and Me* from Living Books, then you'll be familiar with the general layout of *Sheila Rae the Brave*.

This is an exclusive interactive sampler of *Sheila Rae the Brave*, reviewed this issue on page 104. In the full storybook adventure, you follow three main screens in which you can control the story by clicking on any part of the screen. The first two screens are introductory, and the story gets into full swing in the third screen, which includes a host of hotspots such as a flower, a tree or any of the characters. The latter perform some quirky little animated moves when you click on them, and then return to their former position.

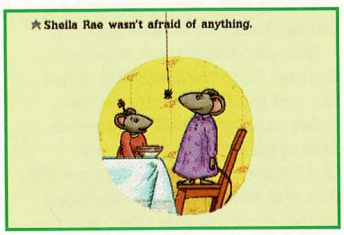
This sampler version limits you to these three screens, but there's plenty to explore, and this highly entertaining adventure will appeal to a far wider audience than just your children.


★ Sheila Rae wasn't afraid of anything.
She wasn't afraid of the dark.
She wasn't afraid of thunder and lightning.
And she wasn't afraid of the big black dog
at the end of the street.

Check out all the playful characters in this exclusive taster of *Sheila Rae the Brave*.

To Install

Sheila Rae will run from the CD.



It's true! Little Sheila Rae is utterly fearless!

Simpsons Cartoon Studio

What is it? Save-disabled demo
Where you'll find it: Demos folder
Mac: 68030
PowerMac: Any
Requires: System 7.0 or higher, 8Mb RAM, 2x speed CD-ROM drive

This is a great little package for creating your own Simpsons cartoons. You have complete control over all the features of your cartoon, from the background and characters to the sound and special effects.

To get started, click on the *Simpsons Cartoon Studio* icon and wait while it loads. Then choose **New** from the menu bar, and from there you can edit your cartoon via the **Editing** Control Panel, which enables you to add or delete animations and props.

To begin editing, add a character to the stage by clicking on one of the character images on the right of the stage. Next click on the character pose you want and it will appear. Then click the mouse to anchor the character on the stage.

Your next task is to select a character or a prop on the stage. You'll know it's selected when a box surrounds it and the **Editing** Control Panel appears – you can then make any adjustments. The available characters are located in the **Layer Manager,** a set of 12 slots at the left of the stage. You can also add and edit sound via the **Sound** button on the lower right corner of the stage. To add more props, click on **Prop,** on the right of the stage. To add a background click the **Background** button on the lower right of the screen – you can then use your mouse to adjust its position.

Work up a sweat washing windows with Homer in the *Simpsons Cartoon Studio.*

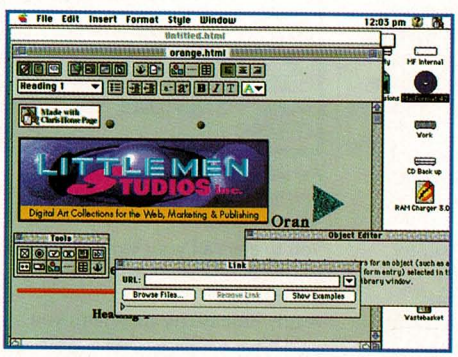
All you need now is to add some effects by clicking on **Special Effects** button on the right of the stage. Finally, to play your cartoon, click **Play** and you're away!

To Install

Simpsons will run from the CD.

HomePage 1.0

What is it? Time-limited demo
Where you'll find it: Web Page Creators Folder
Mac: Any
PowerMac: Any
Requires: System 7.5, 8Mb RAM



Get hypertexting with Claris's contribution to the Internet explosion.

This is a great HTML editor for the Mac from Claris. It's graphically very simple to navigate, and the main menu bar supplies all the on-line help you need. Essentially, *HomePage* works by providing a series of editing modes which you can easily switch between, using the menu bar.

The first mode, **Edit Page**, enables you to make changes to your document, such as adding text, graphics and links. If you then switch to **Preview** mode you are able to see how your pages would look if viewed in a browser – but you cannot edit while you're in this mode. If you want to access the raw HTML components of your document, you can do this easily via the Tool bar.

Along with the **Edit** and **Preview** modes, there are also two main editors. The **Object** editor enables you to edit items, such as images, tables and rulers; the **Link** editor enables you to specify the URL of the pages you want to link up to. Simple but effective, this is a bit of a winner for the couch Web creator – you'll be creating professional-looking pages in no time!

To Install

HomePage 1.0 will run from the CD.

Look!

HyperStudio Preview

If you experienced problems accessing the Start Here file in the *HyperStudio* Preview on last issue's MACFORMAT Cover CD, try this new updated version. We've also included extra *HyperStudio* files to give you an idea of what can be achieved with this versatile multimedia authoring package.

HomePage 1.0

To access the demo version of *HomePage* on the CD, you will need to enter the following number into the registration field after installing it on your hard disk: 7004278112.

Atlasta

In order to use your *Atlasta* movie screen-saver, you will need to enter the following registration code, making sure that you type all the capitals: 1KEF133NQTDH837V.

DiskList

After last issue's floppy and CD were released, it came to our attention that *DiskList* is an unauthorised copy of *Catalogue* by Jacques Bersier. If you've registered your copy with Innsyst, fear not – your fee will automatically be sent on to Jacques. We'll include the latest version of *Catalogue* on a future disk as soon as possible.

Adobe Solutions

If you have a PowerMac and are encountering problems opening any version of *Adobe Photoshop,* the solution is to install the Macintosh Easy Open Control Panel (v1.1.1 or later) from the Control Panels folder located in the System folder, then restart your Mac.

Got a problem?

Before installing software from the Cover CD or Floppy Disk, we recommend you always back up any important work on your hard disk. This precaution will avoid problems if it turns out that a program isn't compatible with your Mac set-up.

We make every effort to check our Cover Disks for compatibility and viruses, but the information here is intended as a guide only, and MACFORMAT cannot be held responsible for any damage to data, any inability to use this software or any resulting losses. So please back up first.

If your CD-ROM or disk is defective, return it to us and we will replace it. Please make sure you have followed the installation procedures described in these pages correctly, to ensure that there is a physical problem with the disk itself. Otherwise, the replacement will give you exactly the same problem!

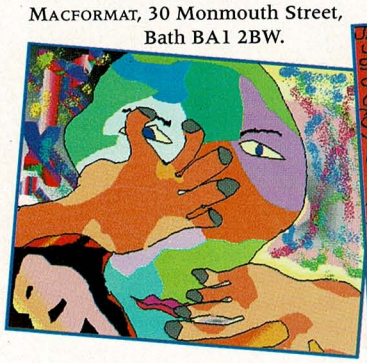
Enclose a self-addressed padded envelope (but we'll pay return postage) with the disk or CD, and a description of the fault. Please do not return disks or CDs to the editorial office; we don't hold any stocks of them and can only refer you to the appropriate address below.

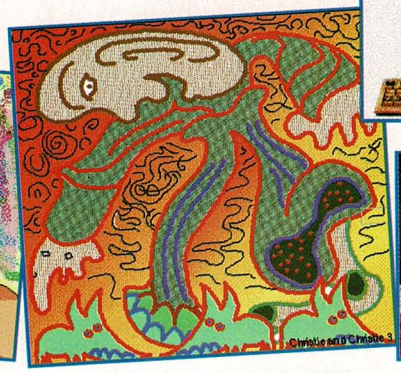
Return faulty CD-ROMs to:
MACFORMAT CD returns
Andy Pope, Ablex
Harcourt
Halesfield 14
Telford, Shropshire TF7 4QR

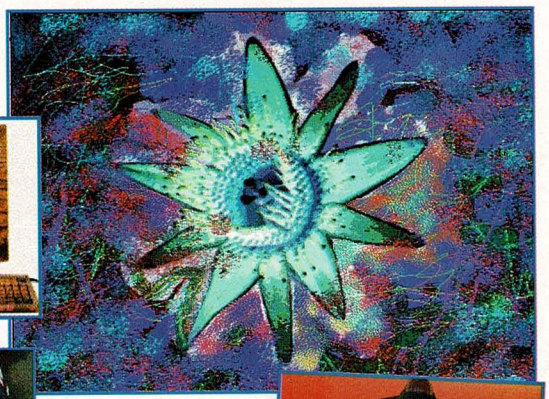
Return faulty HD disks to:
TIB plc, TIB House
11 Edward Street
Bradford, BD4 7BH

Readers' Corner

Some great contributions once again from our talented readers. Watch for the gorgeous work of SM Shahrokni, Kevin McGarry, and Daniel Stephan. Send your contributions to the Disc Editor, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.







Not a beige Mac, not a black Mac but a multicoloured Mac, courtesy of Kevin McGarrey. Is this the future I see before me?

On the Floppy

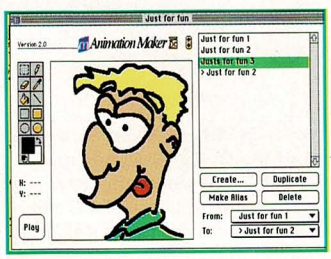
This issue's floppy disk is bursting with handy utilities and games to spice up your hard drive. Create a movie with *Multimedia Animation Maker,* lose it, find it again with *File Buddy* and your colourful 3D *Copland Curser* – and then go and play an addictive game of *Breaker.* Then play another game of *Breaker.* And after that, perhaps a game of *Breaker* would go down well...

Multimedia Animation Maker

It's difficult to believe that so much can be packed into 2.6Mb, but *Multimedia Animation Maker* has managed it. It's a very simple but extremely effective package that enables you to create moving pictures using screens – and then you can play them back. There's a set of 23 demo-sets for you to see the full extent of *Multimedia Animation Maker's* capabilities.

Breaker

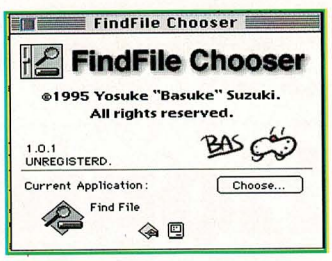
You are Og, the odd-looking creature with a backpack on, intent on stuffing yourself with "eaties". But there are others out to ruin your lunch. The breakers are blocks of bricks that will kill you if you bump into them without the protection of the floating shields that you pick up en-route – and the hitman is also on your tail. If he catches you, he infects you, so you leave a trail of festering radzones (little blobs) around the screen, and they too will kill you. Delightful. But pick up the lettermen on your culinary expedition and you'll gain the power of Ogburst, which means you can eat whatever you like!



Create your own mini-movie with *Multimedia Animation Maker.*

FindFile Chooser

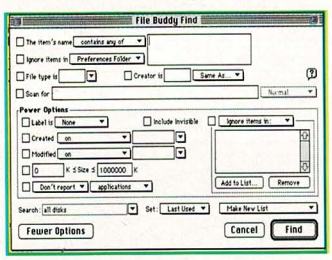
A handy little utility that enables you to find and choose between different Find-File packages you have installed on your Mac.



Find those Find File packages with ease with *FindFile Chooser.*

File Buddy

And here's one now – and it could probably find the proverbial needle in any file or folder on your hard disk. You can even search the contents of files with it.



For all your file-finding needs *File Buddy* is here to take control.

Menu Shade

Maximises your Desktop space by hiding the menu bar unless the cursor is directly positioned over it.

Copland Cursor

Turns your boring black pointer into a colourful 3D pointer.

3D Control Panel icons

A set of 24 colourful 3D icons to liven up your Control Panels.

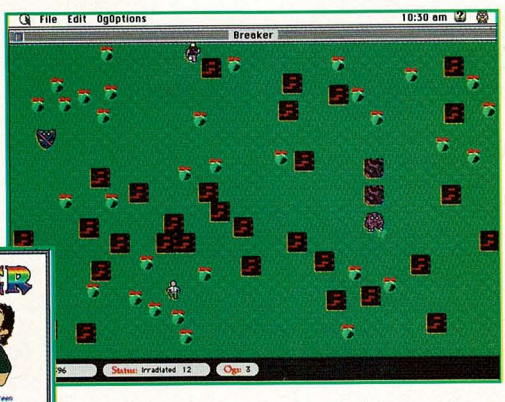
Eject Disk

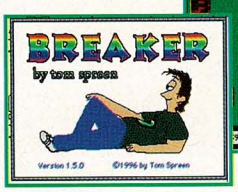
A labour-saving device that enables you to eject all your external media in two handy keyboard strokes.

AnGST

A tiny little utility that helps you get better acquainted with your Mac, with a few useful snippets of information about your computer.

Fill up Og's backpack with all those scrumptious fruits – but watch out for those breakers and the evil purple hitman who's out to get you!





How to use your disk

High density floppy disks normally contain up to 1.4Mb of software, but so that we can bring you as many useful programs as possible, we use a compression utility to fit more on. This means you need to decompress the software before using our Disk; this issue you'll need 4.2Mb of hard disk space.

We also recommend that you always make a back-up of the MACFORMAT Cover Disk, just in case anything goes wrong.

To decompress the Cover Disk contents, open the MacFormat 47 folder on your hard disk and double-click on the MacFormat 47 icon. You'll see a screen telling you about the compression utility we've used. Click Continue when you're ready.

A box then asks you where you want to save the software. Choose the place on your hard disk where you want everything stored, and click Save to get hold of this issue's programs.

Capture and Create with Casio's QV-10A Digital Camera for only £349.99* (ex.VAT)

Shoot ▶ **Review** ▶ **Edit** ▶ **View**

Open up your computer's imaging potential with the brilliant Casio QV-10A Digital Camera. Probably the most exciting development in computers since the floppy disk, the digital camera allows you to input any image you want directly into your computer for inclusion in unlimited types of applications.

With it's built-in LCD screen the Casio QV-10A is easily the most versatile and easy-to-use digital camera on the market. You can see the image on screen before shooting, review any of the 96 images instantly and even delete those you don't need to free up memory. It's just one reason why the QV-10A has already proven to be so popular amongst computer users and why The Mac magazine awarded it 'Editors Choice' and Computer Life a 5 star 'BUY IT'.

At work or at home the QV-10A makes producing more impactful presentations so easy. Include images in your letters, reports, leaflets and club newsletters. Build your own photo album or visual database, even add images to faxes and e-mail or illustrate your internet pages. Images can be saved as Bitmap, PICT's, TIFF's or in Casio's own CAM format and imported into virtually any graphics, word processing or presentation package and even into an Excel spreadsheet. You can also plug the QV-10A into a TV to display images making it the perfect presentation tool.

QG-100 prints direct from the QV-10A

Link the QV-10A directly to the new QG-100 Printer and you can produce quality, adhesive mini colour prints without the need for a computer. The QG-100 costs just £199.99** (ex.VAT)

With a stunning array of features including multiple 1, 4 or 9 image display, Macro lens, Self timer and 270° rotatable lens the QV-10A at just £349.99* is quite simply the best value Digital Camera available.

The QV-10A package includes either PC or Mac connection kit, video lead, batteries, case, cleaning cloth and instructions. The Casio QV-10A is a truly exceptional addition to your personal and business communications.

For details of your nearest stockist telephone the Casio QV-10A dealer hotline... 0181 893 2592

CASIO®

http: // www. casio. co. uk

*Retail Price Guide £349.99 ex.VAT (£411.24).**Retail Price Guide £199.99 ex.VAT (£234.99). † While stocks last.

All screen and print images shown are simulated. The quality of the actual images produced will be of a lower resolution.

Casio Electronics Co.Ltd., Unit 6, 1000 North Circular Rd., London NW2 7JD. Tel: 0181 450 9131. Fax: 0181 452 6323

Available from Action, Argos, Great Universal, Harrods, HCS Global, Inmac, Innovations, Jessops, Misco, Novatech, Powermark, RS Components, Selfridges, Silica, Software Warehouse, Tecno, Technomatic, Viking, Watford Electronics, Branches of The John Lewis Partnership, PC World and selected branches of Dixons and Boots plus all good photographic and computer stores.

FutureNet

http://www.futurenet.co.uk/

FutureNet gives you access to the very latest from Future Publishing's 40-plus magazines 24 hours a day. Just connect to the home page to discover a wealth of news, features and reviews from all of Future's magazines, world

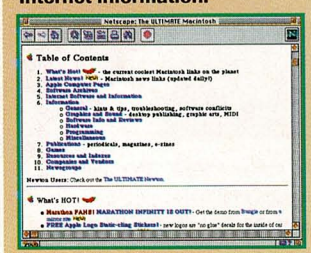
Daily news, computing, sport, crafts and music on FutureNet.

news every weekday and interactive forums.

It's Future Publishing's official Web site and Europe's busiest commercial site, with over 450,000 registered users.

Ultimate Macintosh

The Ultimate Macintosh is the authoritative guide to Macintosh sites on the Internet. Compiled and edited by Michael Yee in the United States, The Ultimate Macintosh points you in the direction of every worthwhile Mac page, including official Apple sites, news sources, shareware sites for downloading software and Internet information.



The biggest list of Mac links you've ever seen – Ultimate Mac.

You'll also find pointers to areas concentrating on hardware, graphics, programming and more. A bumper guide to games joins a list of the major Mac hardware and software firms and their Web pages.

The Ultimate Macintosh is part of MACFORMAT ON-LINE, MACFORMAT's own Web site. Just point your Web browser at http://www.futurenet.co.uk/computing/macformat.html/

Your Web pages

Where do you go when you want to create your own Web pages? Richard Hill looks at the Web's self-help sites.

DIY Web pages

This issue MACFORMAT looks at five of the latest packages to enable you to create great-looking Web pages – find out which win our recommendation on page 84. Once you've started writing and designing your own Web site, you might find the experience bewildering to begin with, but help is at hand – from the Web itself. There are hundreds of sites offering advice and tools to help you master HyperText Mark-up Language, then move on to more challenging subjects like creating image maps and working with Java. And you won't go short on design tips – a site with a name like **Web Pages That Suck** is hardly going to be bashful, but there are more restrained pages as well, like Joe Gillespie's excellent designers' guide.

Name	Web address

Tools for WWW providers — http://www.w3.org/pub/WWW/Tools/

Maybe you haven't even got an HTML editing program yet. This page from the World Wide Web Consortium (W3C), which defines what's in the official version of HTML, lists editors and converters for the Mac and other types of computer. Just click on links to head for pages where you can download loads of HTML editing shareware and freeware.

A Beginner's Guide to HTML — http://www.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimer.html

If you find HyperText Mark-up Language so alien it might as well be written in Swazi, try out this primer guide, compiled by one of the major bodies responsible for organising the Web. Starting right from what HTML and HTML editors are, the guide will take you by the hand and ease you into learning about coding Web pages for the first time.

MACFORMAT HTML Guide — http://www.futurenet.co.uk/computing/macformat/Issue30/create-web/main.html

With the help of FutureNet's Neil Elkins, we show you how to put together text and images in the form of a simple Web page in just eight steps. You'll also learn the anatomy of the URLs which define the location of every page on the Web.

Web Style Sheets — http://www.w3.org/pub/WWW/Style/

You have a great deal of typographical flexibility when you design a Web page at the moment, but W3C wants to change all that. Read about its proposals for World Wide Web style sheets here.

Creating Web Graphics — http://www.widearea.co.uk/designer/

Now you've got the hang of Web page type, how about images? **Creating Web Graphics** is a not-too-technical brief on how to use the right image formats at the right time, and get your graphics looking super.

Imagemap Help Page — http://www.ihip.com/

Image maps are pictures which contain links to other pages within them – a more attractive way of navigating a site. Discover how to put together your own image maps here.

GIF Animation on the WWW — http://www.reiworld.com/royalef/gifanim.htm

GIFs are the standard image format for the Web; animating them is a relatively painless way to give your page movement and extra vitality. Check out the tutorials and samples here for advice.

Apple Flavoured Java — http://www.mbmdesigns.com/macjava/

Java is thought by many to be the future of the Net, and it's on the Mac. This site lists resources to help you get to grips with the language, while discussion areas encourage an exchange of ideas and techniques.

WebTechs Validation Service — http://www.webtechs.com/html-val-svc/

So you've finished your Web pages, and they work on your set-up – but how about everyone else's computers? Submit your code to this automated checking program and it'll point out mistakes for you.

Webreference.com — http://www.webreference.com/

Designed for all Web designers, from beginner to expert, **Webreference.com** features news of the latest developments, plus helpful articles on all aspects of Web creativity – even grammar lessons!

Yale C/AIM WWW Style Manual — http://info.med.yale.edu/caim/StyleManual_Top.HTML

Once you've designed quite a few pages, you'll soon want to master the fundamentals of design to offer more attractive pages. This comprehensive guide offers a formal methodology for creating pages that not only look good, but are easy to read and quick to download. There are also plenty of clear diagrams to help you grasp the ideas.

Web Pages That Suck — http://www.webpagesthatsuck.com/

Starting with a home page featuring author Vincent Flanders' least favourite clichés, **Web Pages That Suck** applies criticism with a rapier edge. Making great use of frames, it invites you to visit and tour round nominated sites while Flanders adds his acerbic comments about their poor design. It might not be fair, but he has some good points to make.

Web Page Design for Designers — http://ds.dial.pipex.com/pixelp/wpdesign/wpdintro.htm

Joe Gillespie's assembled a less belligerent attempt at design criticism, with notes on the principles of good Web design aimed at creative professionals who are new to the medium – but anyone will get something out of it. Fortunately the site is very well-designed too, so it's easy to find your way around and reading text is comfortable.

GLOBAL CALLS LOCAL RATES

NOW FOR THE MAC!
Cross-Platform Internet Telephony Software lets you talk with PC DigiPhone users!
BONUS!
Two Licenses Inside! Extra DigiPhone™ for Mac Included.
Call Anywhere. Talk Forever. Never Pay Long Distance.
The Complete Internet Phone System
DigiPhone™
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Runs native on 68k or Power PC

Now all International telephone calls to colleagues, clients, friends and relations will be charged to you at local rates. Any country, anytime. Simply purchase a copy of DigiPhone for MAC @ £24.95 (inc. VAT) and use the Internet to cut your costs.

You can enjoy two way, direct dial, full duplex phone conversations at a fraction of the cost. You can use the caller ID facility, call encryption if you need extra security, call mute, call screening, text messaging, and a DigiPhone personal phone book.

We will send you two copies so you can send one to a colleague, friend or member of your family and we even have a DigiPhone Global Directory so you can talk to countless thousands of like minded people around the world.

All you need is System 7.x or later, Sound Manager 3.x, modem (14,400 baud or better), microphone and speakers, direct internet access, a 68030 (33mhz) or 68040 (25mhz) or a Power PC and £24.95 (yes only £24.95). It is a one-off cost that could save you hundreds of pounds every year,

so call 01676 522330 now and start saving money! Or send in the coupon.

Name_____ Co. Name (if a company purchase)_____ Title_____

Address_____

Tel No._____ Fax No._____ email_____

Purchase order number (if required)_____ Credit Card Number_____ Expiry Date_____

Please send me ___ (number) copies of DigiPhone for MAC @ £24.95 including VAT plus £4.95 postage and packing.

Call **01676 522330** or Send the coupon to:- DigiPhone Europe Ltd, Watson House, 54 Baker Street, London W1M 1DJ. http://www.digiphone.com

All trademarks are acknowledged

Apple and NeXT sign deal for major new OS ■ Pippin to appear in UK within months ■ Prestige Macs for elite users ■ News Editor: Richard Hill

MACFORMAT NEWS

Apple founder returns to firm

Apple has declared its intention to buy NeXT Software, acquiring its products and programs to merge with its own. The move will give Apple access to exciting systems that will enable the firm to revamp the Mac OS and dramatically strengthen its Internet technologies. The purchase also sees Steve Jobs, who co-founded Apple and later started NeXT, return to the firm.

Apple has been looking at options for bringing in existing software from outside the firm to speed up its work on the Mac OS; this comes after constant delays on Copland, the project once earmarked as the next Mac OS. In an increasingly competitive and fast-changing industry, new Apple boss Gil Amelio and his team realised the need to revamp its operating system, making it more powerful and flexible. There's been widespread industry speculation that it might either buy or license the BeOS, an unfinished operating system with a lot of promise, but the NeXT announcement trumps even that tantalising possibility.

NeXT's resources include some of the most advanced software available, and its focus on serving large corporations will add depth to Apple's traditional strengths with designers, small businesses, education and home users.

Steve Jobs will now work again with Apple as an advisor on the Mac OS, reporting to Amelio. He will also maintain his ownership of Pixar, the animation studio which had a worldwide hit last year with *Toy Story*, and intends to follow other new projects.

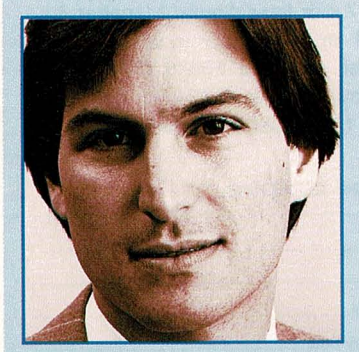
After less than a year at Apple's helm, Gil Amelio is taking decisive action to revamp the company.

What's NeXT?

Apple's purchase of NeXT gives it access to the latter's sophisticated software, a vital resource as Apple develops the Mac and looks to opportunities within the computer industry as a whole.

NeXT started business in 1985 with a series of advanced computers, building on the ideas that Steve Jobs developed at Apple. It's

Jobs resumé: who is Steve Jobs?



A perfect match: Steve Jobs' vision and idealism are to be married with the more businesslike Apple that evolved after his original departure.

During the last two decades, Steve Jobs has been at the heart of some of the most critical developments in personal computers. After working at Atari, the firm which popularised the video game in the 1970s, Jobs teamed with Hewlett Packard engineer Steve Wozniak to form new firm Apple.

The late '70s saw the computer, then thought of as a room-sized machine used only by large companies, become accessible to the individual for the first time. While other new firms catered for the technically adept computer enthusiast, Jobs and Wozniak produced the Apple II, the first personal computer to appeal to a much wider audience. It was also the first computer to offer ready-made software written for the general public by professional developers.

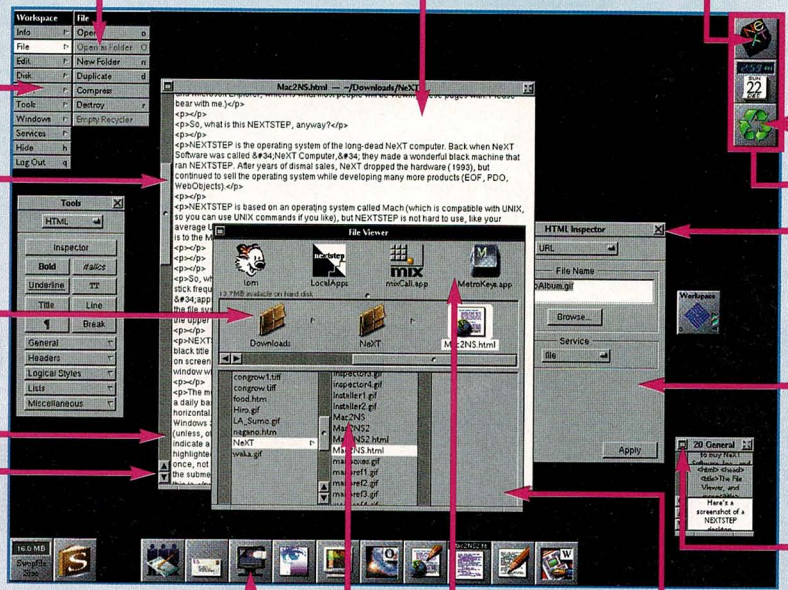
During the early 1980s, Jobs was converted to the then-new concept of the graphical interface – using icons and menus to control your computer. He saw these ideas developed into Apple's Lisa computer, an ambitious, state-of-the-art project that later gave birth to the Macintosh. Despite being less powerful than Lisa, it was the Mac that broke down the barriers and made popular the much-imitated graphical ideas we still rely on today to work computers.

With Apple growing fast, but facing stiff competition from the PC-compatible computer and especially Microsoft's Windows OS, Apple brought in former Pepsi Cola executive John Sculley to develop the firm. The clash between Jobs' idealism, which made the Mac possible, and Sculley's hard-nosed business attitudes eventually led to Jobs leaving Apple in 1985.

Determined to extend his vision, Jobs abruptly started up

The NeXT Mac OS?

Developed by Steve Jobs and the NeXT team after Jobs left Apple, NextStep builds on the ideas first popularised by the Mac. The idea was to make NextStep even easier to use than the Mac; but NeXT lacked the marketing clout to support its ideas, and NextStep seemed set for a mere footnote in history. Now that Apple has bought NeXT, though, is this the face of the next Mac OS? (The screenshot comes from a Web guide to NextStep written by Thomas McCarthy. You'll find it at http://www3.pair.com/mccarthy/nextstep/index.html)


The sub-menu remains on-screen for as long as you like. You can even grab hold of it and move it elsewhere on the screen.
Individual documents are contained in windows, just like they are on the Mac.
Double-click here to bring the File Viewer to the front of the screen.
One menu, which you can drag anywhere you like, contains the functions you call on the most. Select a sub-menu simply by clicking once on the menu item.
The scroll bar's length indicates how much of the document is visible compared to its total size.
This area indicates the path of folders you've followed to reach your current point. Each icon lines up with the list of contents below.
The window scroll bar is on the left of the document so that it's closer to the menu commands you use most often.
The scroll bar's up-and-down arrows are next to each other, and you will also find horizontal arrows placed in the same corner if you need them. This makes it quicker to move around the document.
The Recycler is to NextStep what the Wastebasket is to the Mac.
The Dock is your store for all your favourite programs.
Click on this icon to close the window. You'll see a gap in the centre of the X if you need to save the document first.
Many NextStep programs use an Inspector palette to offer its most-used features from one point.
Click here to reduce the size of the document window right down.
Any programs you have open are indicated here.
See what's stored on your hard drive, or in a folder, here. You can view the contents as icons if you prefer.
Use The Shelf to store your favourite programs, folders or documents.
The File Viewer is where you manage your files and move through folders.

evolved layers of software that enable you to choose how much you want to use, and you can use NeXT systems with your existing computer set-ups. NeXT software currently works with other well-known OS's like Windows and Unix, but not with the Mac OS. The layered approach means Apple will be able to pick and choose different parts and convert them to work on the Mac easily.

NeXT's Mach OS (a bit of playfulness on Jobs' part after leaving Apple?) is at the heart of the NeXT system; it uses a micro-kernel like the one once proposed for Copland. The kernel idea means software engineers can modify any single piece of the OS at any time, then simply slot it back in to work with all the other pieces. It will also make it easy for Apple to add vital features, like the ability to run programs across several processors at once.

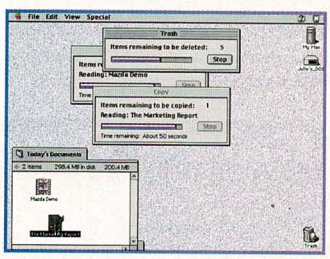
The layer above Mach is NextStep, which offers you the fundamental features you'd normally associate with an operating system – menus, icons, printing controllers and so on. It also includes tools for creating large-scale one-off programs that large corporations rely on. You'll also find these in OpenStep, a NextStep variation which enables you to create programs that will work across all the OS's the system supports.

These core layers are available to Apple to merge with the Mac OS. Amelio, Jobs and research head Ellen Hancock intend to announce in detail how it will bring the two systems together in January. We'll bring you the complete low-down next issue, with the latest news direct from the San Francisco Expo, but Apple is already giving some indications of what to expect:

■ The first release of the NeXT-Mac OS is set for this year, but it's likely to be suited more for software developers than the general public. A fully finished version will follow in 1998.

■ The new OS will run on the PowerPC chip, which means it will work on PowerMacs and forthcoming PowerPC Platform computers. Apple is looking at whether NeXT features can be deployed on older 68000-family Macs like the Quadra. NextStep has already been written to work on 68K chips, which gives them an advantage over their PowerPC successors.

■ Apple is still examining how easy it will be to get current System 7 programs running under the new OS. The simplest option is likely to be an emulator program which will imitate a PowerMac running System 7, in the same way that PowerMacs today can imitate 68K Macs to run older software. A firm ➤



After years of development on Mac OS 8, Apple is largely starting from scratch with the NextStep system.

NeXT and launched a rival to the Mac. The NeXTstation was an extremely powerful device for its time – too powerful and expensive to appeal to a computer-buying public whose tastes and needs were changing quickly. NeXT's computers may have flopped, but they still found favour with those who appreciated its virtues. NeXT's systems were designed from the outset to work with many other types of machines across company or global networks, and were used on the project which led to the technologies used in the World Wide Web today.

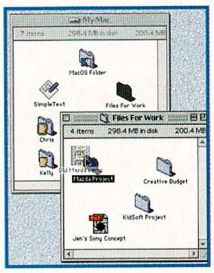
More recently, Jobs has used NeXT to evangelise the Web and object-based software that enables publishers to use the Web with enormous flexibility. NeXT has been working on technology that makes it quick and easy for firms to create Web sites that link into any computer system they might already own (stock databases, for example). Jobs believes the ability to make such customised systems easily will become essential as the computer industry moves to the predicted set-up of many cheap and simple devices connecting to larger computers.

called Ardi has already produced *Executor*, a program for NextStep which can emulate the Mac running System 6.

■ Apple will develop the new OS alongside System 7, which will continue to evolve at least into 1998. You'll be able to choose which OS to run until Apple introduces some form of System 7 emulator.

Web tools

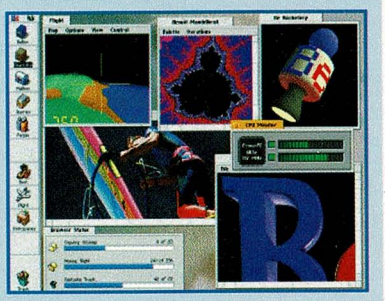
In addition, Apple now has access to NeXT's WebObjects, one of the most powerful systems available for creating large-scale World Wide Web sites. Using WebObjects, firms can link new Internet systems with their existing setup, for example directly linking a Web-based shopping service with its computer-based inventory of stock.



Copland was the project supposed to lead to the release of Mac OS 8. Many features will appear first in a System 7 update due in July.

Apple will be able to bring these ideas to a wider audience than NeXT managed to, combining them with its own Internet and multimedia technologies, to make dealing with large amounts of information easy.

Be's Future

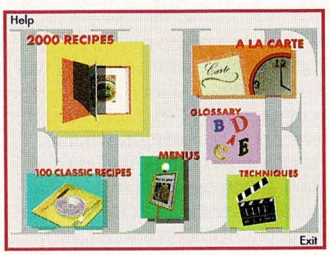


To quote Gil Amelio's dreadful pun, unleashed on an unsuspecting audience at the merger announcement: "We picked Plan A instead of Plan B." Although Apple has decided to use NeXT's technologies rather than Be's, you haven't heard the last of this exciting new firm.

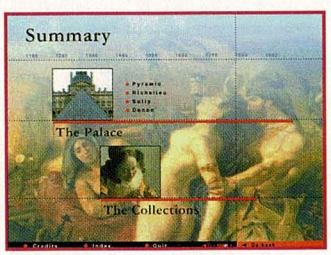
Be will continue to develop its BeOS (right) for its own BeBox computer and for the PowerMac. The BeOS should appear formally on the PowerMac in January when Power Computing starts to include it with some of its range – but it's still unfinished, and there's a lot of work to be done before you can use BeOS programs for your everyday work.

Pippin in UK for spring

Katz's version of the Pippin Internet and multimedia console for your TV will make its British debut within months.



Reference titles for Pippin will include *Elle Cookery Cards*.



***Le Louvre* is one of the high-quality multimedia titles coming to Pippin.**

The multimedia and Internet console based on Apple's Mac OS (operating system) and PowerMac hardware is set to go on sale this spring. Katz Media, one of the two firms producing machines based on the Pippin design, has spoken to MACFORMAT about its ambitious plans, which include a complete kit for connecting to the Internet for less than £550.

The machine Katz is planning is essentially a cross between a console like the Sony PlayStation and a full Mac computer. The idea is to offer the ease and simplicity of the former, which enables you to just plug it in and start using it, and the versatility of the latter, offering Internet connections, education multimedia, word processing and much more. The idea is to offer computing power to a new audience; even the most basic Mac is too complex for many people, and the computing industry regards making computers easier to use as one of its greatest challenges.

Pippin is a computer design using the same PowerPC 603 chips found in some Performas, such as the 5200 and 6200. It offers a colour display through your television but can run programs similar to the ones you use on your Mac. Many programs written for the PowerMac can be slightly modified to run from a Pippin CD-ROM, each of which also includes all the OS components the program requires.

Apple has long seen the Mac OS as a system that can make computers easy and more accessible, but regards Pippin as a necessary step for getting more people to use them. Because Pippin was designed by Apple, any Pippin CD-ROM will also work on a PowerMac, but actually using these machines will feel very different.

The Japanese toy manufacturer Bandai is already selling Pippin devices; its Atmark Player went on sale in Japan last spring, while the renamed and redesigned @World is available in the United States. Now Europe is in line to receive its own Pippin, this time from Katz Media.

Pair of Pippins

Katz Media UK's General Manager David Dews told MACFORMAT that it would offer two versions of Pippin, under a brand name still to be unveiled. "It will ship with four titles, and we'll also be shipping a digital catalogue, probably on a quarterly basis."

The cheaper of the pair will be a multimedia player for the home, with a controller incorporating several buttons and a mouse-like trackball. It should cost around £450. Its four titles will demonstrate the range Pippin can offer, with reference and education titles

Katz's Pippins

	Processor	RAM	CD-ROM	Internet	Controller	Price
Multimedia player	PowerPC 603	8Mb	8x	–	Joypad	£450
Internet device	PowerPC 603	8Mb	8x	Modem, browser	Joypad, keyboard	£550

Each device will also come with four software titles.

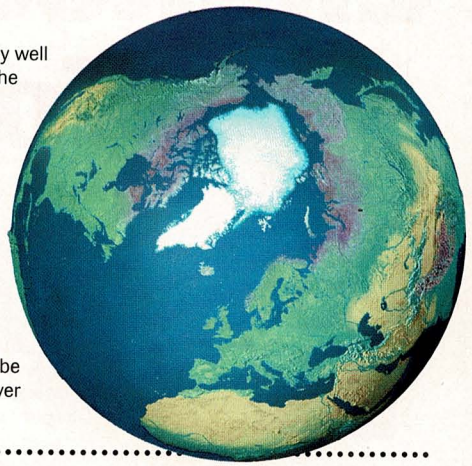
World agrees on cheaper computers

You can expect to see cheaper computers and a faster-growing Internet after the announcement of a global agreement to make it easier for manufacturers to export their products. Countries around the world have committed to dropping taxes on imported electronic items by the year 2000.

The Information Technology Agreement was signed in December 1996 on behalf of 28 countries – including the UK, the rest of the European Union, the United States and Japan – which conduct most of the world's electronics trade. It means taxes on computer chips, components and software, often designed to prevent overseas companies from competing fully in a particular country, will be scrapped in progressive stages over the next three years. Some countries in Asia have tariffs as high as 30% to protect their own computer firms, and the European Union is equally notorious for its duties.

Computer firms around the world hailed the ITA as a momentous step forward, making the growth of communications systems like the Internet sure to increase. A lift on telecommunication system tariffs may well follow this spring, reducing the worldwide cost of Internet connection still further.

Apple's George Scalise commented: "The consumer will be the ultimate beneficiary from lower prices on products." The agreement details remain confidential while other countries decide whether to sign up, but it's estimated that thousands of millions of dollars a year will be saved in an industry worth over $500,000 million.



alongside games.

Katz Media's main hope, though, lies with the upper model in its range – a ready-to-use Internet system. It will include a 33,600 bps modem, the fastest widely available, and a CD-ROM with a Web browser. This, says Dews, will be simpler to use than existing browser programs from Netscape and Microsoft. "The focus is on people who do not have an understanding of information technology, and what it takes to pull down menus and configure this, that and the other. It will be more akin to a Web TV-type experience.

"Most people realise that for the market we're going after, having to configure anything is nonsensical."

The Net Pippin will cost around £550, and you'll be able to sign up with an Internet Service Provider to get the connection, too. There'll also be an Internet kit for adding the modem to the cheaper Pippin.

Pippin Plus

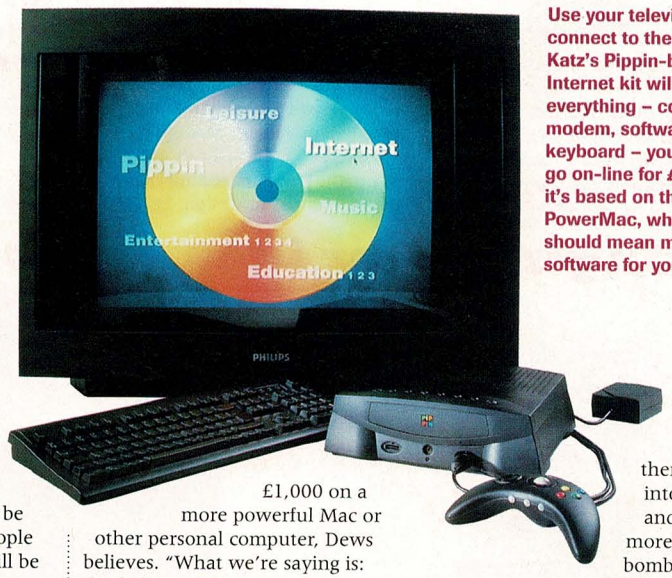
Katz Media also has plans to take Pippin beyond this level with a later add-on box which will offer the sort of features you'd find more typically in a Mac. "It might incorporate an Ethernet network card, or a Zip Drive and a modem," says Dews. This opens up new possibilities like using Pippins as information kiosks in shopping malls or hotels, for example.

You'll also be able to expand your Pippin with RAM memory upgrades in slim plastic cases. You can simply open the expansion slot, much as you'd open a battery compartment, and plug in the RAM. "You won't be able to go in a shop and buy a RAM upgrade," says Dews, "but it will be available on a Web site. So people who know what they want will be able to get it."

Options like these are mainly for specialist projects like the aforementioned kiosks, though, as well as for schools. People at home will generally go for either of the main models, rather than spend over £1,000 on a more powerful Mac or other personal computer, Dews believes. "What we're saying is: think first. Is a personal computer really what you need?

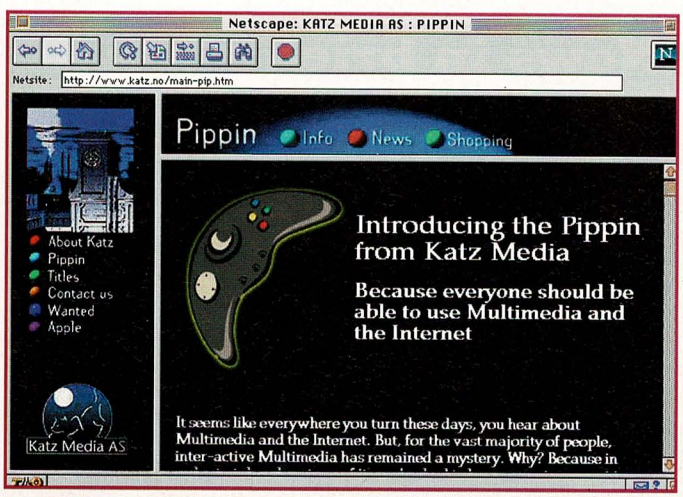
"A lot of people, when they go in and look at a personal computer, they don't actually know what they need. But there's this hype: all this marketing is being bombarded at them to go into a store and have more things bombarded at them, and ultimately all it does is confuse the issue. What we're trying to do is take away that confusion."

Look out for further coverage of Pippin in MACFORMAT closer to the formal launch this spring.



Use your television to connect to the Internet: Katz's Pippin-based Internet kit will give you everything – console, modem, software and keyboard – you need to go on-line for £550. And it's based on the PowerMac, which should mean more software for you.

Pippin games will include a chapter from the lush *Journeyman Project* series.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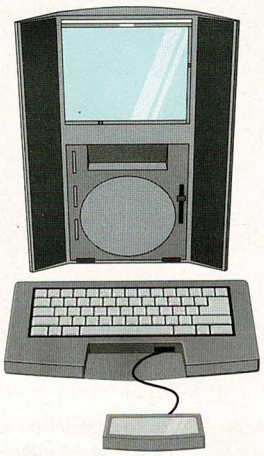
Wanted
Apple
Introducing the Pippin from Katz Media
Because everyone should be able to use Multimedia and the Internet
Katz Media AS
It seems like everywhere you turn these days, you hear about Multimedia and the Internet. But, for the vast majority of people, inter-active Multimedia has remained a mystery. Why? Because in

Katz Media's Web site (http://www.katz.no/) gives basic details on its Pippin plans. More pages just for Pippin owners are coming.

Limited edition Macs for power users



Apple is preparing new PowerMacs which – quite deliberately– are sure to be in short supply. Limited-edition Macs with exotic cases and exclusive features will appeal to people who want the best and have the money to get it, as well as representing the potential of the Mac.

The first we'll see of these prestige Macs is likely to be the already-announced machine codenamed "Spartacus" (artist's impression shown left), according to the trade paper *MacWeek*. First billed last year as a special Mac to mark Apple's 20th anniversary, it now isn't likely to go on sale until after the firm's 21st birthday bash this April. But it should appear in public at January's Macworld Expo in San Francisco.

Apple will probably make only 10,000 anniversary Macs, which are likely to cost upwards of $8,000 (£4,850). The outstanding aspect of the machine is its design: Spartacus has a thin, curved case like a book stood upright, with a flat screen display and a CD-ROM drive mounted like a portable CD player stood upright. The whole Mac is less than two inches thick, perched on a metal stand.

The Mac's insides compare with a high-speed Performa: it's likely to use a PowerPC 603e chip running at its current peak of 240MHz, with 32Mb of RAM and a TV tuner.

Spartacus is more a design statement than a serious business exercise, but it seems to have inspired Apple to extend the limited edition concept. The Halo line will offer the ultimate Macs, with the fastest chips and distinctive extra hardware and cases. Halo Macs aren't a replacement for the types of PowerMac you can get today – they're more the icing on the cake.

Apple hasn't decided on exact set-ups for Halo yet, says *MacWeek*, but is considering using Exponential X704 chips, which will offer chip speeds over twice as fast as anything available today. Halo Macs will also offer extra hardware cards designed for specific industries like digital video or publishing.

As powerful as they'll be, Halo and Spartacus are simply extensions of Apple's new strategy of offering specific Mac packages to appeal to a particular type of user. Already its Performa line is divided into models for families, small businesses and creative users.

Changing your idea of a computer

Apple's first Mac, the 128, broke the mould immediately with a compact case design containing the computer and screen in one box.

Ten years later, the Performa line revived the concept – only it's not so compact any more.

Many people associate the 9500's tower design with computing power, according to research. Lower-cost machines are now adopting the look.

News in brief

QuickTime adds MPEG

Apple's QuickTime video software is now able to play Video CDs and other video clips recorded using the popular MPEG system without the extra hardware it usually requires to work.

MPEG (Motion Picture Experts Group) is a video playback standard used in some multimedia CD-ROM special editions (such as Grolier's *The Animals*), but you'll see it most on Video CD titles, which include Hollywood blockbusters and music videos.

The MPEG Extension works with QuickTime 2.5 to enable your PowerMac to play MPEG video immediately. It's free at the Web site **http://quicktime.apple.com/**

■ Discover how to make the most of QuickTime in our new series starting on page 46.

Home Net slow to take off

Few people are using the Internet at home, and the promised computer communications revolution may be a long time coming, according to a recent survey. Key Note's *Internet Usage in the Home* claims that just 3% of homes in the UK have a Net connection, compared to the United States' 14% .

The survey predicts the number of homes with Internet access will rise from the present 900,000 to 2.6 million by the year 2000 – still only 12% of the total. But Key Note also says the type of person using the Net will change significantly during this time, embracing all sorts of user rather than the well-off professional most surveys show dominating the Net today.

Virtual Web worlds on Mac

It will soon be easier for you to explore 3D environments live on the World Wide Web, thanks to a deal between Apple and design computer firm Silicon Graphics. The latter is to produce its *Cosmo Player* Web browser, made for displaying 3D worlds written using the VRML 2.0 system, for the Mac.

Virtual Reality Modelling Language 2.0 enables computers to display environments you can move through; clicking on key points can trigger actions like linking to another Web page or triggering a sound.

VRML 2.0 will also be able to use Apple's QuickDraw 3D graphics system, which will help the latter move closer to becoming a de facto standard for 3D graphics.

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Madness in *Duck City* and warfare in Bungie's *Myth*. Plus: *PixelPutty's* 3D graphics and Canon offers a new Mac printer. News Editor: Richard Hill.

Duck City

God knows where Alan Snow's head is at. An award-winning illustrator and CD-ROM artist, he has a knack of coming up with delightful, wonderful concepts drawn with an energetic, primitive line – stuff that restores the carefree child in you, while all the time making you wonder: "Just where the &*!?@ does he get his ideas from?"

With his colleagues in Domestic Funk Products, Snow created *Paws*, a whimsical, surreal trip into the head of a cartoon dog. It was almost an interactive version of Bob Godfrey's *Roobarb*, an old favourite Children's BBC cartoon, and everyone loved *Paws* (we certainly did; it earned a MACFORMAT Classic Award with a rating of 90% in issue 23) and it seemed bound for huge success; but a split within its publishing firm Voyager at the point of release delayed its appearance and wrecked its publicity momentum. It did eventually appear through Virgin Records, but deserved more.

Now, though, Snow is back – without the rest of Domestic Funk, but with the added support of BMG Interactive – bringing you *Duck City*, a series of loosely-linked games and activities starring a duck. In "All-Terrain Duck", you negotiate a four-wheel-drive Duckmobile around tricky courses, while "SlamDuck" challenges you to a game of basketball.

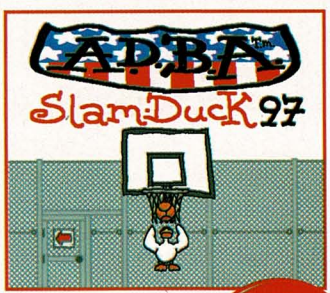
But this duck is *not* as innocent as he appears – he has a dark side he would prefer to keep hidden. MACFORMAT, of course, has long campaigned for journalistic truth and freedom of rights: we will speak out, no matter what recriminations we might receive from *Duck City* authorities. The slugs of *Duck City* see the duck as a scourge which must be stopped at all costs. The consequences of the duck's continuing presence are revealed in "RoboDuck", a game of the grim future, where you play a robot-suited duck hunting down slugs with your vacuum sweeping weapon. The slugs have to resort to ever more desperate measures to protect themselves in this platform-game battle, hurling lettuces and slime at their foe.

Innocent slugs are further oppressed in "Slug Farm", where you keep and rear slugs in readiness for the Slug Show – and you must keep the slugs penned in and pacified with lettuce to prevent them escaping and ruining your garden. Faced with such barbarity, the slugs have been forced to go underground and fight the duck's disinformation with covert tactics.

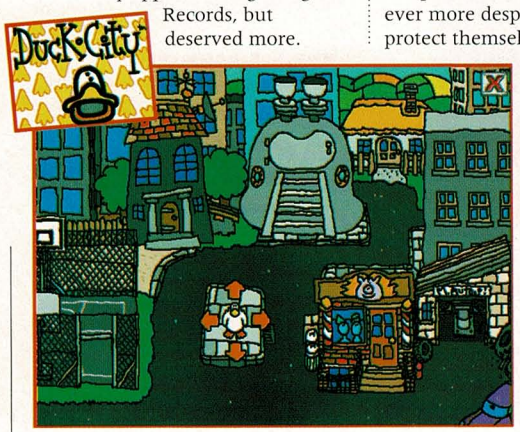
You can enjoy Alan Snow's distinctive world, portrayed across six games in total, for £14.99.

■ **Contact BMG Interactive on 0171 384 7783.**

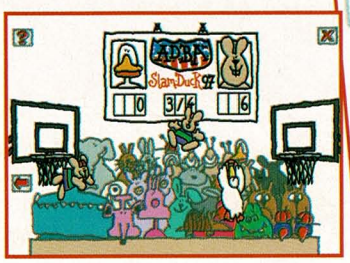
Welcome to *Duck City*: six activities at a bargain price, including the pulse-pounding "RoboDuck".



***Duck City* shows our hero's friendly face, but he's made some dangerous enemies among the slugs...**



This is *Duck City*, where you'll find six challenges to test your dexterity... and your sanity.



***White Ducks Can't Jump:* take on the bunnies in the SlamDuck basketball play-offs.**

Each game is explained with Help-Duck, a simple graphic guide to the game's controls and purpose.

PixelPutty 2.0

With new programs *LightWave* and *Cinema 4D* coming to the Mac soon and an updated version of *Strata StudioPro* also on its way, you're not short of choices for powerful new 3D software. Now Pixels is throwing its hat into the ring with a fresh, updated release of *PixelPutty.*

PixelPutty 2.0 builds on the features of earlier versions to offer tools for the three main areas of 3D graphics – modelling, rendering and animation. As its title suggests, the program enables you to create wireframe models and essentially mould them into new shapes as if they were made from putty. There are options for selecting a shape and twisting or stretching it – or you can simply grab hold of a point on the model and pull. *PixelPutty* also uses Boolean mathematics to combine shapes in unusual ways, using one as a negative space within a second, for example.

You can link objects together and move or manipulate an entire group; a hierarchical overview palette means you can see what you've linked within a scene.

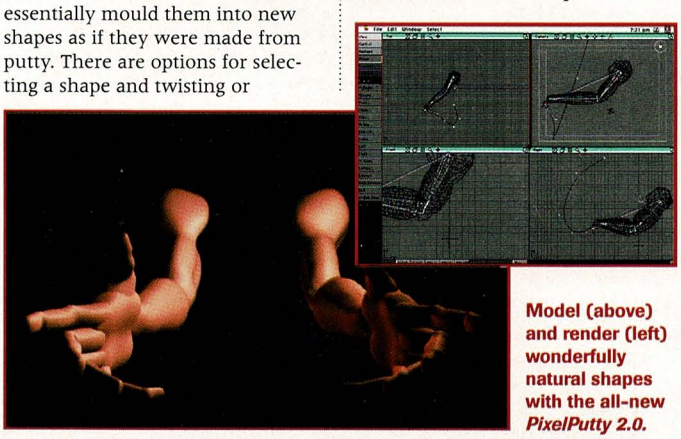
PixelPutty offers several alternatives for rendering, the process of adding light and shade onto your models. It uses QuickDraw 3D to offer an almost-instant preview of basic light patterns; you can also perform a quick render at any time to see how the textures you've added are working. The full Phong rendering option gives you control over shadows, reflections and refractions, as well as atmospheric effects like fog and ambient light.

You can also use more advanced features to adjust the depth of field within your image, making the extreme foreground out-of-focus for example, or add motion blur to give a static model the impression of movement.

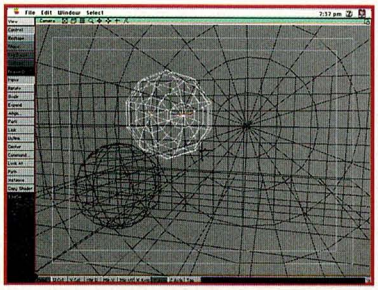
The animation tools give you the ability to construct frames for a video sequence. You can adjust camera angles throughout the sequence, even setting up a naturally curved spline as a path for the camera or an object. *PixelPutty* also offers inverse kinematics, a method for giving 3D human or cartoon characters realistic movement.

PixelPutty will be available both as a standard, ready-to-use package for £586 or with extra features and personal support for £1,174.

■ **Contact RenderMation on 0181 341 5484 for more.**



Model (above) and render (left) wonderfully natural shapes with the all-new *PixelPutty 2.0.*



***PixelPutty* has many ready-made shapes, and you can mould objects just by grabbing hold of the wireframe and pulling.**

***PixelPutty* enables you to make natural-looking models full of subtle details.**

The program offers a full selection of textures and dramatic lighting effects.

Canon BJC-4550 printer

You may use a Canon printer with your Mac every day and not realise it: Canon is the firm that's provided the printing machinery inside every Apple StyleWriter for the last few years. Unfortunately for the firm, Apple's now opted to team up with Canon arch-rival Hewlett Packard for future projects, leaving Canon in the unenviable position of going from market leader for Mac printers to also-ran. Now, though, the battle begins in earnest: Canon is taking everything it's learned from years of making Mac printers and using it for its own range.

The £410 BJC-4550, shown at the recent Apple Expo by distributor Mygate, will look instantly familiar if you've seen a StyleWriter. This model can handle paper sizes up to A3 (twice the size of a MACFORMAT page), printing at 720 x 360 dots-per-inch in four colours – or more than four if you include the optional fluorescent ink cartridge, an add-on Canon claims to offer exclusively.

The printer includes driver software to enable it to work with your Mac right away – there are drivers for QuickDraw, the standard imaging system built into every Mac, and QuickDraw GX, the more recent enhancement with loads of special graphic effects at its disposal.

You'll get standard black and three-colour cartridges (magenta, yellow and cyan combine with black to make all the colours you normally see on a print-out or in any publication), but you can also buy the Photo Cartridge, an extra gadget which varies the strength of dots on the page to create an impressive tonal range and make your images look more real.

Now that it's going it alone, Canon faces a real challenge to make its printing technologies as ubiquitous on the Mac as they were under the guise of the StyleWriter – but if anyone can...

Canon's BJC-4550 is a small-cost printer capable of giant-size prints.

■ **Contact Mygate on 0181 318 1424 for more details.**

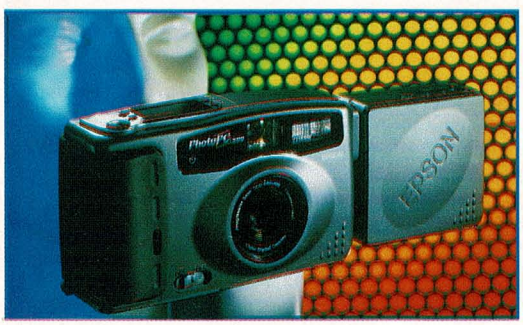
Epson PhotoPC

Epson's newest product joins a field of digital cameras which is growing at an astonishingly quick rate. At £470, the PhotoPC is designed for anyone who demands convenience from their cameras, but it can still capture comparatively detailed pictures. Its maximum resolution of 640 x 480 pixels is equivalent to a full-sized image on a 13-inch monitor, and the pictures can use up to 16.7 million colours.

Looking much like an ordinary 35mm camera, the PhotoPC includes many of the features you'd associate with a simple snapper. You can frame your shots using the optical viewfinder or with an optional LCD screen, while the camera also offers automatic focus and flash settings.

Where a standard camera would store its images on film, though, the PhotoPC retains your special moments in its digital memory, ready to transfer to your Mac via a simple cable. The PhotoPC comes with *PictureWorks PhotoEnhancer*, a program which enables you to tweak the colour or brightness balance of your images on your Mac. You can also blur or sharpen pictures, and there are templates for making everyday publications like calendars and greeting cards.

Contact Epson on 01442 61144.



Epson's PhotoPC makes transferring your photos into your Mac easy.

Myth

Bungie's *Marathon*, a non-stop riot of science fiction action, is possibly the most acclaimed game series on the Mac. On a superficial level, the three games (*Marathon Infinity*, reviewed in MACFORMAT 46, was the most recent) were clearly part of the first-person shoot-'em-up genre kick-started into popularity by *Doom*. *Marathon's* maker Bungie injected a great deal of imagination and creativity into its hit trio, though, taking *Marathon* well beyond the status of pale imitation: in many ways, *Marathon* is the state of the art. Now Bungie is looking to effect the same influence on another fast-growing type of game.

Due out later this year, *Myth* tackles the strategy wargame genre, given new life over the last year by Blizzard's *WarCraft* (we rated *WarCraft II* at 93% in MACFORMAT 45). In the tradition of the fantasy wargame, *Myth* pitches opposing forces against each other – your task is to manage your side and devise tactics to defeat your foe.

Stunning animation and a compelling story immerse you in a *Myth*.

As the war progresses, the changing seasons play a part.

The action unfolds on a huge scale, with legions at your command.

Bungie is taking today's wargame and developing it further, with many fresh ideas appearing in *Myth*. Your battleground is in 3D rather than the typical flat overhead view, with undulating hills and richly-detailed terrains. Your forces are animated in great detail, with natural light sources casting shadows across the landscapes. And, as it did in *Marathon*, Bungie has made a world with its own people and history. You'll feel the world is real – even the weather changes as the seasons pass, affecting the landscape and either helping or hindering your armies.

As usual, Bungie is passing no comment on *Myth's* release date, but don't expect it to see it earlier than the summer.

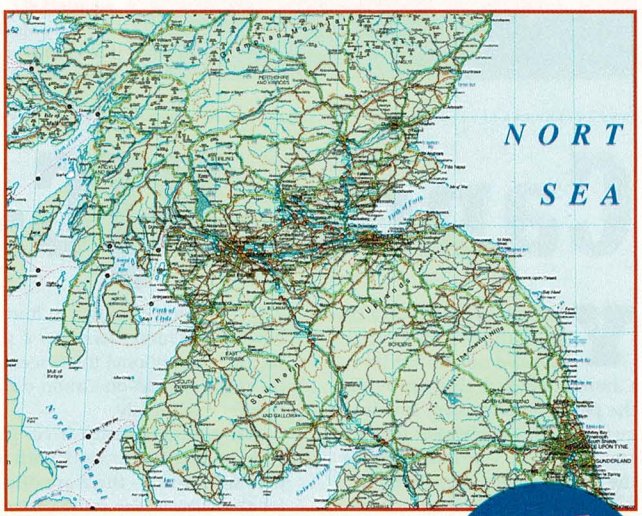
Maps in Minutes: The British Isles

Reference maps are an important part of design and research work, and there's a healthy trade in electronic versions ready for publishing, education and business use. Cornwall-based RH Publications' latest map project is *The British Isles*, a set of images of our islands which you can view in many different ways with the help of the Mac's flagship drawing programs.

The four map sets, each of which you can buy for either *Illustrator* or *FreeHand*, offer varying amounts of detail. The maps were produced using data from bodies like the Automobile Association and the Meteorological Office to ensure accuracy.

Prices start from £100 for the Economy set, which gives you the most vital information on the British Isles. Each subsequent set includes all its predecessors' maps, plus additional information. The top-of-the-range Full Deluxe collection gives you the most detailed maps, including individual county maps. Our table below shows the main information available with each set.

Contact RH Publications on 01840 212135 for full details.



With up-to-date information, *The British Isles* offers designers access to accurate maps.

MORE PRODUCT NEWS – PAGE 132

British Isles maps in minutes

Collection	Price	Max scale	Includes
Economy	£100	1:1,500,000	Sets: nationwide map Layers: coastlines, rivers, counties, cities, motorways, railways, airports, longitude and latitude
Classic	£234	1:1,100,000	Sets: Economy plus England, Scotland, Wales, N Ireland, Republic of Ireland Layers: urban areas, A roads, motorway junctions, land mileage, local airports, ferries
Deluxe PostScript	£529	1:750,000	Sets: Economy, Classic plus counties and regions Layers: B roads, tourist information, weather forecast zones, sea contours, maritime zones
Full Deluxe	£646	1:750,000	Sets: Economy, Classic, Deluxe Bitmap relief backgrounds: greyscale, colour

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If you could fit MACCELERATE! to a 100 metre sprinter...

Not all Processor Boards are Created Equal...

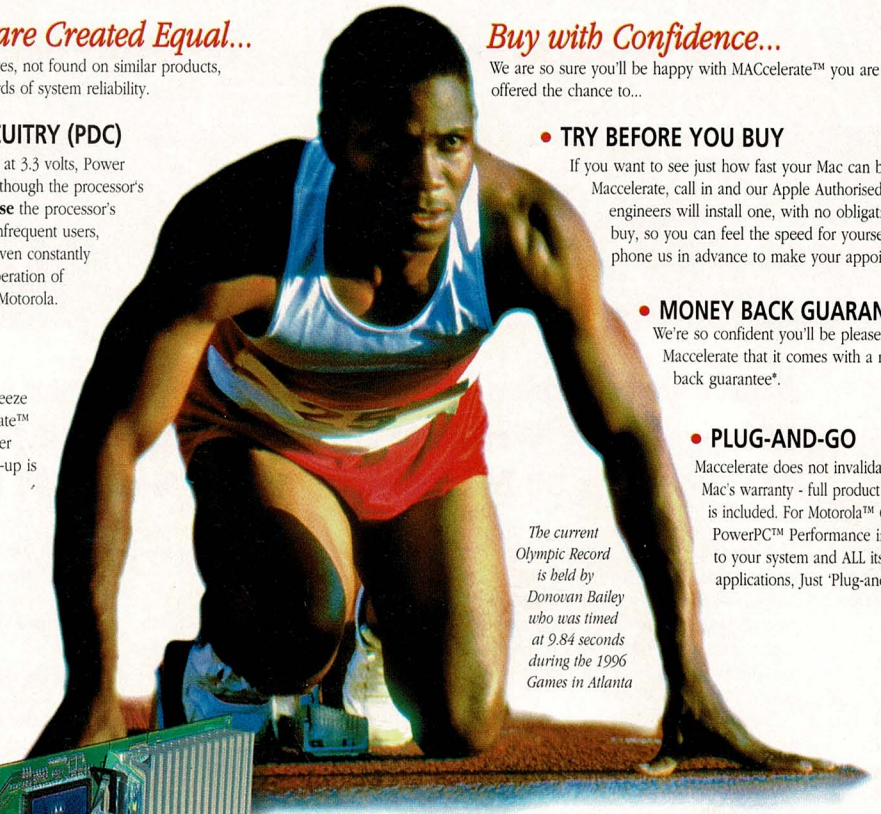
The MACcelerate™ range has two important features, not found on similar products, which are essential to maintain the highest standards of system reliability.

• PROCESSOR DECOUPLING CIRCUITRY (PDC)

Whilst the PowerPC 604e was designed to operate at 3.3 volts, Power Macintosh main circuit boards operate at 5 volts. Although the processor's I/O buffers *can* be run at 5 volts, this may **decrease** the processor's lifespan. Perhaps not such a serious problem for infrequent users, but crucial if the system is to be used regularly or even constantly (eg. servers etc.). MACcelerate™ guarantees the operation of processors at the correct voltage - as specified by Motorola.

• PHASE LOCKED LOOP CLOCK SYNTHESISER (PLLCS)

We all know how a Macintosh may occasionally freeze for no apparent reason. Well, that's why MACcelerate™ incorporates a Phase Locked Loop Clock Synthesiser which ensures that system synchronisation on start-up is set to a more reliable fixed frequency between the main circuit board's upper and lower tolerances. The result... a far higher standard of operational reliability than found when using boards that don't incorporate PLLCS circuitry.



The current Olympic Record is held by Donovan Bailey who was timed at 9.84 seconds during the 1996 Games in Atlanta

Buy with Confidence...

We are so sure you'll be happy with MACcelerate™ you are now offered the chance to...

• TRY BEFORE YOU BUY

If you want to see just how fast your Mac can be with Maccelerate, call in and our Apple Authorised Service engineers will install one, with no obligation to buy, so you can feel the speed for yourself. Just phone us in advance to make your appointment.

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You know what it's like...

When you're starting your Mac, loading a program or file, waiting for that Photoshop™ effect, or in fact doing pretty much anything... your computer doesn't feel as fast as it used to, does it? Its not become tired itself, but the demands of the latest OS versions and the newest applications keep getting higher and higher and slow your system down. And, if you've tried one, you'll know that today's Macs are a lot faster.

So, should you buy a new Mac now?

What is MACcelerate™?

Unlike many 'go-faster' upgrades which overspeed the standard processor, Maccelerate™ is a complete replacement for your Mac's original processor and daughterboard - it uses the new fast 604e CPU with 2 integral 32k caches. So, because the 604e is much more powerful than a 601 or 603, and by combining the extra horsepower it offers with the higher clock speeds of 150, 180 or 200MHz, you can see from the charts that...

The performance gains are massive!

Can I fit MACcelerate™ myself?

If you've never fitted an internal upgrade yourself, don't worry...

Your Mac was designed by Apple to be processor upgradeable and Maccelerate™ couldn't be simpler to fit. No soldering, no cables, no software to load (it simply requires System 7.5.3 or later), just plug Maccelerate™ in and reboot!

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Processor Boards for Power Macintosh Computers

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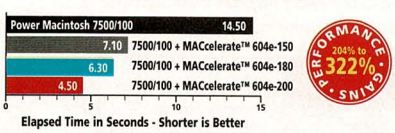
Dealers please call for prices.

MACcelerate™ Specification, Performance and Prices

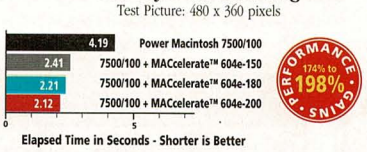
Photoshop 3.05 Gaussian Blur

Test Picture: 1181 x 1671 pixels - 24bit


Power Macintosh 7500/100 14.50
7500/100 + MACcelerate™ 604e-150 7.10
7500/100 + MACcelerate™ 604e-180 6.30
7500/100 + MACcelerate™ 604e-200 4.50
0 5 10 15
Elapsed Time in Seconds - Shorter is Better
PERFORMANCE GAINS 204% to 322%

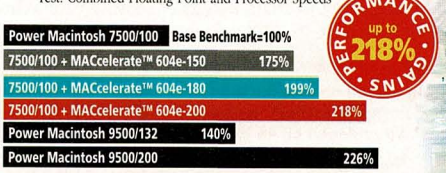
KPT Bryce 2.0 Rendering

Test Picture: 480 x 360 pixels


Power Macintosh 7500/100 4.19
7500/100 + MACcelerate™ 604e-150 2.41
7500/100 + MACcelerate™ 604e-180 2.21
7500/100 + MACcelerate™ 604e-200 2.12
0 5
Elapsed Time in Seconds - Shorter is Better
PERFORMANCE GAINS 174% to 198%

MacBench 3.0 Processor Performance Test

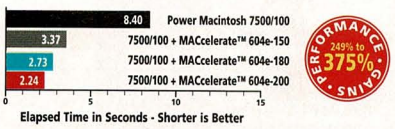
Test: Combined Floating Point and Processor Speeds


Power Macintosh 7500/100 Base Benchmark=100%
7500/100 + MACcelerate™ 604e-150 175%
7500/100 + MACcelerate™ 604e-180 199%
7500/100 + MACcelerate™ 604e-200 218%
Power Macintosh 9500/132 140%
Power Macintosh 9500/200 226%
PERFORMANCE GAINS up to 218%

Why consider replacing your 7500? Add MACcelerate for just a moderate cost and almost equal the performance of a 9500/200! **Overall performance increases measured using the industry standard MacBench 3.0 application. Results are combined for the integral floating point maths co-processor and main processor. Longer is Better.**

Photoshop 3.05 RGB to CMYK

Test Picture: 1181 x 1671 pixels - 24bit


Power Macintosh 7500/100 8.40
7500/100 + MACcelerate™ 604e-150 3.37
7500/100 + MACcelerate™ 604e-180 2.73
7500/100 + MACcelerate™ 604e-200 2.24
0 5 10 15
Elapsed Time in Seconds - Shorter is Better
PERFORMANCE GAINS 249% to 375%

MACFORMAT Classic

Earning a MacFormat Magazine Classic Award, MACcelerate recently scored a staggering 91% in their review article! MacFormat said "...the MACcelerate is your ticket to first-class performance. Excellent"!

Point your web browser at http://www.mot.com/SPS/PowerPC/products/semiconductor/chips.html to see why the 604e is the most powerful processor available for desktop systems.

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New 604e with 2 x 32K Internal Cache

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New 604e with 2 x 32K Internal Cache

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All prices exclude VAT and are shown for business purchasers only. Consumers, please ask for an Inc. VAT price. All Trademarks are acknowledged. Prices correct at time of going to press, E&OE.
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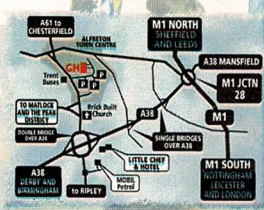

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Steve Jobs, father of the Mac, is back at Apple! Write and share your views on the news about Apple or anything Mac-related, and if your letter is published here you'll win a MACFORMAT binder. (Of course, if all you want is the binder, you can turn to page 144 and order one. But I'd still like to know what you think...)

Share your views on MACFORMAT, Apple, or anything Mac-related! Write to: Alex Summersby, AppleTalk, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.

Where you do get it

In MACFORMAT 46 a letter titled "Is it a Duracell?" describes a reader's problems getting a replacement PRAM battery for his Mac. My experiences are totally different. A few months ago I diagnosed that the cure to my Mac's woes was a new PRAM battery, so I toddled off to my local Apple Centre, where without any fuss or bother they sold me a new battery for around £14. (At the time I thought "what a rip-off" – not any more!) Then I fitted it myself (a mind-numbingly simple task) into my trusty Performa 630. Hey presto! Problem solved. Easy! Oh, and in answer to your question: no, it's a Ray-O-Vac!

And another thing. A common whinge in your letters page is the lack of Mac software for sale in our high streets. I agree! However, I was pleased to discover that our new and improved HMV store, which reopened up here in Newcastle-upon-Tyne (it's now the second largest in the country) had a small section dedicated to Mac stuff. Also, amazingly, from time to time they have some truly excellent offers – for example *Marathon* £9.95, *Marathon 2* £17.95, and various compilations at bargain basement prices. On chatting to the sales assistant I learnt that it didn't just sit there gathering dust but sold quite well – in fact he was trying to get permission to allocate even more space.

I must stress that I have absolutely no connection whatsoever with HMV, but I do feel we should congratulate them and encourage them that they really *are* doing the right thing!

Tony Hall
via FutureNet

After much persuasion from Apple (all credit to 'em!), HMV's flagship store near Oxford Circus increased the space it devoted to Mac software ***tenfold*** *– and it was so pleased with the results that you should soon be seeing a Mac section in all the major HMV stores in the UK.*

On the upgrade path

What's Apple up to then? Moving the emphasis briefly onto the home market with its Performa and LC ranges, and then severing support for the users of these models? That's how it looks from behind my beloved LC630 36/250 anyway.

Apple remains committed to moving its entire range to PowerPC standard, but has blocked the upgrade path we domestic users once had, by either ceasing production of PDS PowerPC upgrade cards or making them more expensive than buying a new machine.

Surely this is foolhardy in a marketplace that is more competitive than ever, with the appearance of Mac clones? Apple UK itself seemed confused when I telephoned about this: one of its technical support people, when she was looking for some information for me, actually said "I wonder what PPC stands for?"!

I would appreciate a clarification of the realistic upgrade path to PowerMac: I was quoted £700 plus for the provision of the PDS card alone, and at least £250 to fit it, which would be more expensive than buying a whole new Mac.

Has Apple forgotten the non-professional fanatic market that was so important to it back in the days when its computers were supplied in kit form?

Steve Thomas
Cheltenham, Gloucestershire
via FutureNet

The limited upgradability of LCs or Performas always was an issue, but you do have to wonder why upgrade cards cost so much. (Though surely a "fanatic" wouldn't need to pay someone else to fit one!) Then there's the worry that if you do upgrade the processor, the rest of the machine may not be able to keep up. At least now Apple says all current motherboards can cope with processors up to 250MHz – and some upgrades like the MACcelerate board reviewed last issue ***are*** *good value for money. Watch for a feature on upgrades soon. Meantime, any more views?*

Latin American bias?

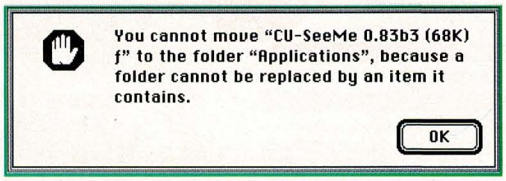
What the hell is wrong with you guys, making a big issue out of whether it's English or American written or spoken in CD-ROMS? What difference does it make whether it's *Autumn* or *Fall*, *color* or *colour*? Can't you tell there's no difference, or don't you know what these words mean?

Being from Latin America, I don't care if it's English or American. We Spanish speakers have a lot more problems related to language. For instance, there are about ten different ways of saying the word "strawberry" in ten different countries, so imagine if I buy a CD-ROM from Paraguay and they use words that I don't know the meaning of, or have a completely different meaning to me so I don't know what the hell they're talking about.

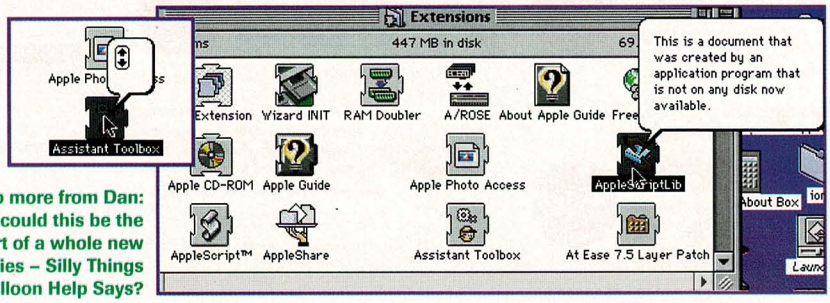
So enough of this silly debate and maybe you could start enjoying your software whether it's American, Australian, British, Soviet, Martian or whatever.

Dr Mauricio Cordero
Mexico, via FutureNet

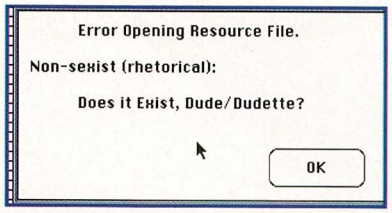
British reviewers do seem a bit defensive about Americanisms. But more impor-


You cannot move "CU-SeeMe 0.83b3 (68K) f" to the folder "Applications", because a folder cannot be replaced by an item it contains.
OK

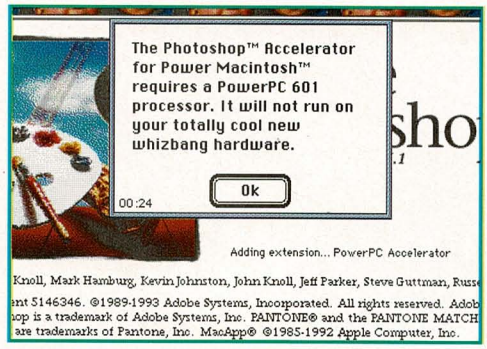
Silly Things Your Mac Says, number 464 – another case of mistaken identity, from our favourite 13-year-old correspondent, Dan Karran. (Doesn't he ever go to school?) Has your Mac given you a silly message? Grab it using [command] [shift] 3 and send it in on disk or by e-mail.



Two more from Dan: could this be the start of a whole new series – Silly Things Balloon Help Says?



We've noted before that error messages are generated by your applications when they receive error codes from the System, and the text of the message displayed is written by the programmer... but I've never come across one quite as cringe-worthy as this one. Idan Reiss of Nijmegen in the Netherlands got it when trying to open an icon resource with *ICONstructor*.


The Photoshop™ Accelerator for Power Macintosh™ requires a PowerPC 601 processor. It will not run on your totally cool new whizbang hardware.
00:24
Ok
Adding extension... PowerPC Accelerator
Knoll, Mark Hamburg, Kevin Johnston, John Knoll, Jeff Parker, Steve Guttman, Russ
ent 5146346. ©1989-1993 Adobe Systems, Incorporated. All rights reserved. Adob
hop is a trademark of Adobe Systems, Inc. PANTONE® and the PANTONE MATCH
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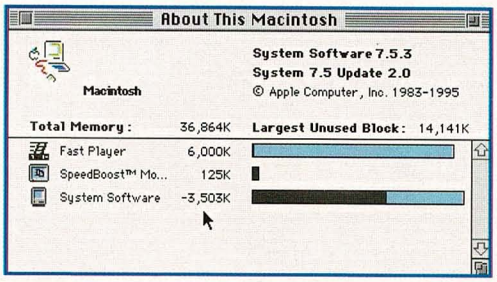
Craig Ferguson got this silly message when he was trying to launch *Photoshop 2.5.1* on a Performa 6200 with the whizbang PowerPC 603 processor.



And speaking of things that just don't add up: from Steve Thomas of Cheltenham, "an interesting bit of memory management that even *RAM Doubler* can't beat! By the way," Steve adds, "as far as System 8 wishes go, it would really be nice to have the OS recognise the fact that I'm using an LC630 in the 'About this Mac' box..."

tantly, potential UK buyers will want to know if the content of a reference CD, for instance, is dominated by topics of interest to Americans rather than topics of interest to themselves. It's a matter of cultural imperialism – something not entirely irrelevant to Mexico, surely.

Serious about games

In the MacGamer supplement that came with Macformat 45, Garrick Webster asked if there were any accurate versions of *Space Invaders* available. You can actually download an emulation of the original arcade machine from the "Emulation on the Macintosh" page at **http://www.komkon.org/~stiles/emulation/**.

While I do not remember the originals of any of the games that Garrick mentioned – *Space Invaders* came out before I was born – I have played emulations. These old games do have good gameplay, but they also lacked variation and had a ridiculously steep learning curve. I would not swap *Marathon Infinity* for *Pac-Man*.

Of the literally hundreds of games released in the arcades and on home consoles during the period covered in the article, less than ten were mentioned. This was because only the true classics are remembered, and the vast majority of the rest were terrible games.

On the other hand, only a handful of modern games will be remembered in ten years, and most of the huge number of beat-'em-ups, driving games and 3D shoot-'em-ups that are being released in arcades and on consoles will be forgotten just as easily. The message to games designers is: combine the old playability and lastability with modern graphics and complexity.

On a different point, Balloon Help is a great way of finding hidden messages from programmers. Try it on any Ambrosia game (especially *Escape Velocity*) and the QuickDraw 3D extension.

Yours Retro-Gamingly,
Thomas Fisher
Huddersfield, West Yorkshire
via FutureNet

*Our retro-reviewer Garrick Webster replies: "No-one's saying you should swap **Marathon** for **Pac-Man**. You can have both. In fact you can play an almost arcade-perfect **Pac-Man** for free on your Mac – along with other Arcade Classics, it was included on Macformat 45's Cover CD. But I would, in fact, rather play **Pac-Man** than a huge number of today's releases. Games like **Marathon**, remember, are the exception. The point is that despite the vastly superior technologies available to them, games developers still manage, on the whole, to churn out dull rubbish. Why?*

*"Here's an anecdote for you. We recently met some game developers from the States. They have recently had millions of dollars pumped into their firm. When my colleagues met them at a show, not one of their programmers or designers could get past the third wave on **Defender**. This raises the question: if they can't play a game with decent gameplay, how can they be expected to design one? It's like trying to write a book before you can even read a comic. I wouldn't invest a penny in them."*

Un-comfy keyboard

I was extremely interested in the letter from seven-year-old Alan Stewart (Macformat 46) criticising your high rating of the Tomy ComfyKeyboard. Both my children have been brought up with "ordinary" computer keyboards, first on a Commodore 64, then an Amiga 500, with the Apple Performa only during the last 12 months.

They were both quite capable of not hammering keys either on a computer keyboard or a piano. Right from the word go, access to the computer has been freely available, with much pleasure gained. Even very young children can produce "paintings" by using a mouse.

By limiting their access using *At Ease*, surely damage can be limited. By playing with a glorified activity centre, their range of interaction is severely curtailed to the products designed solely for its use. Children have as much intelligence as adults – just less experience. Why restrict them to an adult's idea of childhood when there is a whole world of experience available?

Mrs Ruth Hunt
Malvern, Worcestershire
via FutureNet

Two of the play-testers who tried the ComfyKeyboard were my own children, Alexander (now four) and Jennifer (two and a half). They both loved it – and still keep asking for it, three months later. Despite the dire pixellated graphics (maybe because of them?), it really does seem to engage them much more than anything else on my Mac, even the best interactive storybooks – but then, those do tend to be aimed at slightly older children. Any other opinions? **MF**

What would you like to see in System 8?

■ **One of the few ways in which the PC at work beats my Mac at home is in having a keyboard shortcut to switch between programs ([alt] [tab]) for those of us too lazy to reach for the mouse when in keyboard mode. This is top of my wish list for System 8 (or do I mean System 7.7.9.3 October 1998 Issue 5.6.5?) But, more importantly, I think I read in Macformat about a shareware utility which included this function. Did I dream it?**
Mark Walker, via FutureNet

There's lots of them, most recently Program Switcher (on the Macformat 46 Cover CD and floppy). To find others, use the MF Disc Index on this issue's CD and do a search for programs with "switch" in their names.

■ **If it is possible to introduce new Extensions to the System without restarting, why not have a Control Panel where one can define a set of INITs and CDEVs [Extensions and Control Panels] to every program? This way, the *Extensions Manager* would become obsolete, and the RAM used for one program could be put to better use when you're not running that particular program. For example, if I have a RAM-hungry application, I can define just the set of Extensions required so I can use all the RAM (for *Photoshop* users – they usually need all the RAM they can get).**
Peter Cedermark, Uppsala University, Sweden, via FutureNet

An admirable idea – like extending the kinds of memory management offered by RAM Doubler and RAM Charger (see page 90) to Extensions, so that any RAM reserved for them can be "borrowed" by a running application that needs more memory. However, it isn't quite possible just at the moment to load new Extensions without re-starting. Instead, Apple is increasingly using Libraries – Extension-like resources that don't take up any memory while they're not being used. QuickDraw 3D is one example – but it does grab itself about 12Mb of RAM as soon as you start using it...

■ **My wish for Mac OS 8: incorporate the functionality of *PopUpFolder* into the Mac OS.**
Richard Downs, via FutureNet

"Spring-loaded" folders were planned for Copland or System 8 (as was), and should now appear in "Tempo" (System 7.7?), which is due in July this year.

What would you like to see in Mac OS 8? Write to us or e-mail macformat@futurenet.co.uk with "Wish List" in the subject line.

A4
Depth scale
Gefiot Whitman
Faber-Castell
TK-VINYL · VINYLE
HONDA

State of the Arts

The Mac has always been the machine of choice for computer art and graphic design, and there's a renaissance in art software happening right now...

When the Macintosh first appeared back in 1984, computers were big – *really* big – calculating machines. At best, they displayed text in the form of flickering green computer type on a basic black screen, and as for graphics... Well, let's just say that ASCII art is a contradiction in terms. Computer users could only aspire to the creative heights of what we now call "Smileys" or "emoticons" – those arcane little combinations of obscure punctuation characters that look a bit like grimacing faces if you tilt your head and squint.

The Macintosh blew them all away. It was the first computer that gave you a true graphical display, and a white one at that, like an inviting sheet of drawing paper. And from the start, the Mac came with the software with which you could exploit this amazing graphic capability. True, the original *MacDraw* doesn't seem quite so impressive now. But it, and the friendly little machine it was bundled with, immediately captured the imaginations of artists and designers, establishing the Mac as the computer of choice in the graphics and creative professions – a status it has held to this day.

The technology and the software evolved hand in hand – exploded, even, once colour arrived as well. Today, whatever you do on your Mac, you are reaping the benefit of that graphical capability and of the innovations introduced by the *Photoshops* and *FreeHands* and *StrataStudios* that followed. The lush 3D graphics of modern games, the drawing tools in any word processor, even the fact that you can create forms and charts and tables in your spreadsheet – all grew from that technology and the incredible software that it made possible.

Today, there's even more interest in graphics on the Mac than ever before, with the arrival of new names such as Corel and, soon, *LightWave*, plus the release of upgrades to established market-leaders like *Photoshop* and *FreeHand*. So join us as over the next ten pages we assess the state of the arts software on the Mac, with in-depth reviews of the new *Photoshop 4* (overleaf) and *FreeHand 7* (page 36), plus overviews of their rivals in bitmap and vector art, and a glance at the world of 3D (page 40). Art on the Mac has never looked so good...!

PRICE £635	**ON SALE** Now	**CONTACT** Adobe on 0181 606 4000				**WEB SITE** http://www.adobe.com	
MAC **Processor:** 68030 • **RAM:** 16Mb		**POWERMAC** **Processor:** Any • **RAM:** 16Mb		**REQUIRES** **System:** 7.1 • **HD space:** 25Mb • **Screen:** 640 x 480			
• **Colours:** 256 • **Extras:** CD-ROM drive							

Photoshop 4

MACFORMAT Classic

***Photoshop's* legendary image manipulation tools have made it the industry's favourite photo editor. Jim Chandler reviews version 4 to discover whether the legend continues...**

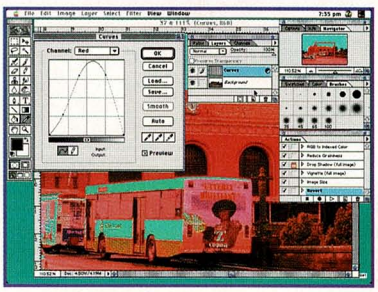
Sellotape that parcel. Hoover the floor. *Photoshop* that picture. It's not every piece of software that becomes synonymous with the task it performs, but the verb "to *Photoshop*" seems to have crept into use in the world of print origination. It's not surprising, really. *Photoshop* was one of the original Mac photo retouching packages and, with its ability to perform image retouching techniques that had previously only been seen on incredibly expensive high-end systems, it very soon became extremely popular. In bureaux and studios all over the world, it's *Photoshop* that gets rolled out whenever images need retouching.

Now *Photoshop* has reached the dizzy heights of version 4. This latest version has some good new features, but it isn't the massive upgrade that version 3 was.

Interface tweaks

On loading *Photoshop 4* for the first time, the differences aren't immediately obvious. There are new **Actions** and **Navigator** palettes, the menu bar contains new **Layer** and **View** menus, and the Pen tool is now available from the Toolbar, rather than the **Paths** palette. To make way for it, the Cropping tool now pops-out from the Marquee tool.

Pop-out tools have been around in *Photoshop's* sister application *Illustrator* for some time, and are included in *Photoshop* as part of an attempt to make its user interface work more like those of *Illustrator* and *PageMaker* – Adobe's other big packages. Unfortunately, this has meant that some of the keyboard shortcuts which are second nature to veteran *Photoshop* users have been changed. Luckily, the **Undo** option stays the same, and you'll be using it a lot as you get the hang of the new shortcuts.



You can apply colour alterations to an image by using Adjustment Layers. The alterations don't become permanent until you merge the layers.

New features

There are useful features too, though. The **Navigator** palette is an excellent idea. It shows a small thumbnail of the entire image you're working on, with a red box superimposed over it to represent the area that is visible on screen. If you've zoomed in a long way, and you

The changes in version 4

Clicking on this panel will open your Web browser, with links to Adobe's Web page.

The Layers menu holds the controls that used to live on the Layers palette.

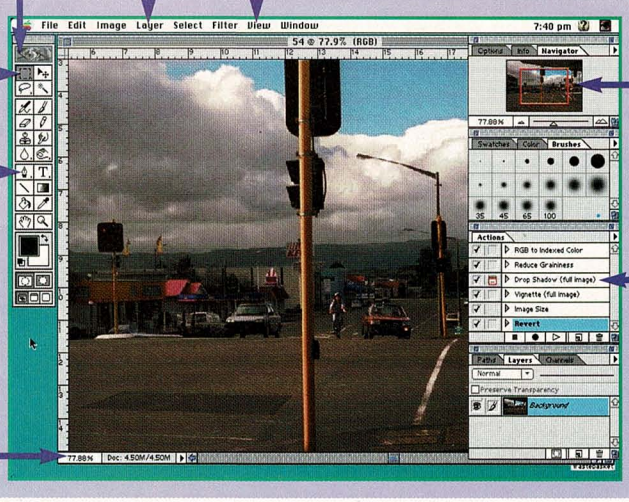
The Views menu has been added to handle the new Zoom options.

You can use the Navigator to find your way around a document, and zoom in and out.

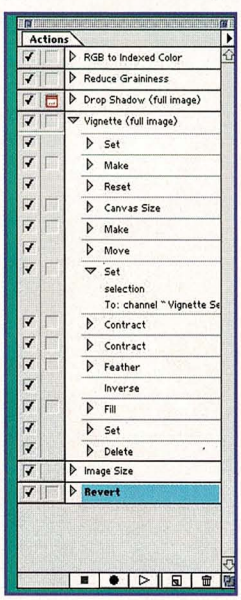
The Selection tool button now also contains the Cropping tool.

The Pen tool now lives in the Toolbox.

Now you can specify a percentage enlargement, rather than being stuck with fixed zoom ratios.

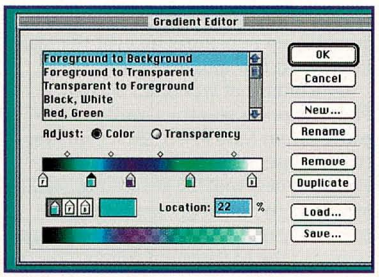


Sequences of commands can be recorded and played back from the Actions palette.



Once you've recorded a sequence of actions, that sequence is available from the Actions palette.

The small red box in the Navigator palette shows the visible area of the image. To move to another area, simply drag the box. Brilliant.



Forget *KPT's* Gradient Explorer: the new Gradient Editor can generate blends between several colours, and a transparency gradient too. Sorry, Kai.

need to go to a different part of the image, you no longer need to zoom out and back in again, or spend ages dragging the window sliders around. Simply dragging the **Navigator's** red box to cover the area you want to see on screen will scroll the image window to the right place. Quick and easy. Why don't more applications have one of these?

The **Actions** palette is even more useful. *Photoshop* has only ever had limited support for AppleScript, which means that it was previously impossible to automate anything but the simplest tasks. Suppose, for instance, that you have 50 scanned images to go in a catalogue you're producing, and you need to load each one, run it through an **Unsharp Mask** filter and save it out in a different format. Doing that for each image in turn would be time-consuming and boring. Now, though, *Photoshop* allows you to record a series of commands and play them back. So you could record the commands you use to deal with the first image, and then play them back on all of the others. Simple though this sounds, it's capable of producing some quite impressive results – as some of the sample actions supplied with the application show.

Most of the other new features are minor tweaks that just make *Photoshop* a bit easier to use. For instance, you can now drag guides out from the rulers around your image, just like in any DTP application. This is invaluable when you need to align elements in an image.

Faster and neater

The new **Views** menu includes a **Fit On Screen** command, which scales the picture to the largest size that will fit on your screen, allowing for any palettes you may have floating about.

Now you can also specify enlargement in percentage terms, instead of being restricted to the old ratio-based system. So, what was 2:1 is now 200%, but if that's not quite big enough you can always make it 214%, for example. A handy slider in the **Navigator** palette makes this easier still.

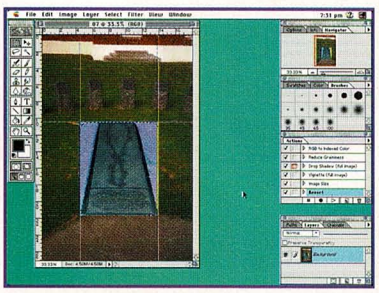
The **Layers** menu has been added to take all the layer controls that used to be in a pop-out menu on the **Layers** palette.The new menu makes a lot more sense. In Version 3 of *Photoshop*, layers remained separate until you flattened the image, which squeezed all the layers together. The new version has a **Merge Down** function, which enables you to selectively flatten layers together. *Photoshop 4* also has a new type of layer, called an **Adjustment Layer.** These layers are non-destructive, which means that any changes you make in them aren't permanent until you merge them with the layer underneath. **Adjustment Layers** are particularly great for trying out different colour corrections.

Ping?!

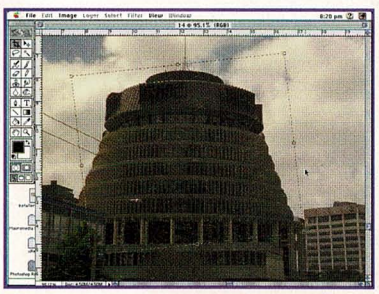
PNG stands for Portable Network Graphic. It's pronounced "Ping", and was developed as an all-singing, all-dancing graphics format for the World Wide Web. PNG images can be compressed and interlaced, may contain animations and transparent colours, and they can support up to eight alpha channels. Rumours that they are also capable of making the tea have yet to be substantiated.

Web publishing

Photoshop has always been designed to generate images for print, but with the increasing popularity of digital publishing in the shape of the World Wide Web, *Photoshop* has had to evolve features to cope with this new area too. Images for the Web are usually in either GIF or JPEG format. *Photoshop* now has better support for the GIF89a format, with options to set the number of colours, the transparent colour (if any), whether you wish the file to be interlaced and the type of palette used. If you prefer JPEG, you can now choose to save your file as a Progressive JPEG image, enabling end-users with slower modems to see a representation of the image without having to wait for it all to load. There's even support for an up-and-coming Web image format called PNG (See the "Ping?!" box above). Not many browsers support PNG yet, but the format's still fairly new and it could well become the Web standard.



It's a lot easier to align objects precisely with guides that act like those found in most DTP applications.

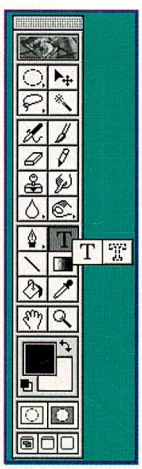


The Cropping tool has also been revised. It now has handles on the edges as well as the corners, which make sizing much easier. You can also rotate the cropped area at the same time.

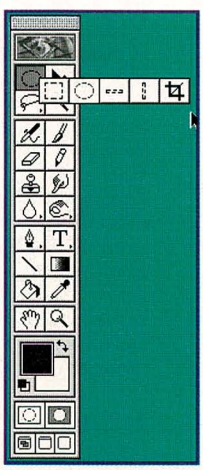
More plug-ins

One of *Photoshop's* strengths has always been its expandability. It's possible for third-party developers to write add-ons to add functions that the straight-out- ➤

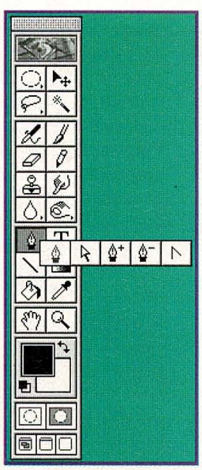
***Photoshop* now boasts pop-out tools. The old Freehand Lasso tool is still there, but now there is a Polygon Lasso tool for defining regular areas.**



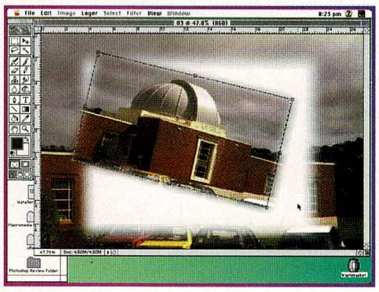
Text handling hasn't really changed much, except for a new Text Mask tool, which uses the outlines of the letters to create a mask.



Lost the Cropping tool? It has now been grouped with the other Selection tools, including two new tools for selecting individual rows of pixels.



The Pen tools are now in a pop-out on the main Toolbox.



With the Free Transform tool, you can scale and rotate objects simultaneously.

of-the-box *Photoshop* doesn't have. Version 4 hasn't changed this feature, but it now comes with 48 filters that used to be available separately as *Adobe Gallery Effects*. These new filters consist mostly of artistic effects, and you can expect to see them cropping up in pictures all over the place in the next few months.

One filter that was often used by Photoshoppers was the **Gradient Explorer** from *Kai's Power Tools*. Sadly for Herr Krause, *Photoshop* now boasts an excellent new tool for generating graduated tints. Whereas gradients could previously only run from the foreground colour to the background colour, you can now create them containing any number of colours, and have their own transparency gradient too.

Who it's for

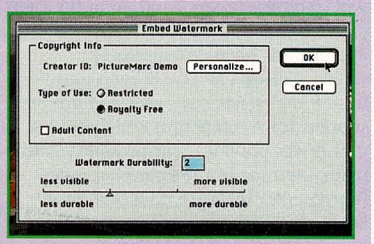
Photoshop is a professional application. It doesn't like working with amateurs, and it won't even get out of bed for less than 16Mb of memory – more if you've got it. And that's real memory, not Virtual Memory. *Photoshop* uses its own form of virtual memory, which can fill up your hard disk almost as quickly as it can your RAM. A welcome new feature, in the shape of a **Purge** command, has been added to enable you to sacrifice the ability to **Undo** that last filter and regain some disk space. Previously, the only way to do this was to close the file you were working on and re-open it.

Adobe also seems to have taken the opportunity to improve the speed of the application. My informal tests suggested that version 4 is – on the whole – a smidgen faster that its predecessor.

No doubt about it, *Photoshop* is one of

Making a marc

If your business is selling pictures, how do you stop people ripping off your work without paying you? This is especially problematic since digital images can be duplicated with no loss of quality, and can be copied around the world in a few minutes. What's needed is a kind of watermark which proves the image is yours, which can't be removed and which doesn't spoil the picture. The Digimarc filter supplied with *Photoshop 4* offers just this. Time to start chasing after those royalties.



The Digimarc filter embeds invisible watermarks in your files – readable by any Digimarc-enabled application.

Alternatives

Of course, *Photoshop* isn't the only image-editing package for the Mac. There are any number of young upstarts vying for a slice of the market, and not all of them have *Photoshop's* features or its professional-level price tag. After all, why buy such a massive package just to touch up your family's holiday snaps?

Missed it?

If you missed any of our reviews of these progams, listed on page 35, turn to page 144 for details of how to get hold of back issues.

Color It!

We gave you *Color It! 2.3.5* on MACFORMAT 31's Cover CD-ROM. For general-purpose home use, *Color It!* is a good choice. It doesn't need much memory or hard disk space, is compatible with *Photoshop* Plug-ins and can import quite a lot of graphics formats. It may not have all *Photoshop's* high-end colour correction features, but it has a good variety of brushes and the new v3.5 will support layers and alpha channels.

PhotoDeluxe

Also at the home end of the market is Adobe's own *PhotoDeluxe*. This is pretty much a cut-down version of *Photoshop* that has been revamped to simplify its interface. The new friendly, colourful interface arranges its tools into useful groups. For instance, the Cropping and Scaling tools can be found in the **Size** group, and the **Quality** group is home to tools for improving scanned pictures. *PhotoDeluxe* can use *Photoshop* filters, and most of its tools are every bit as good as their *Photoshop* equivalents. It also shares some of its big brother's memory requirements. If you've got a PowerMac, you'll need to be able to dedicate 12Mb of RAM and 45Mb of disk space to it. At only £88, though, it's well worth a look.

PhotoFix

Le Pixel's *PhotoFix* is another image editor aimed at the home user. It needs only the most piffling amounts of memory, but its rather quirky user interface and features can be frustrating. One of its main advantages is its High Quality Printing system. Chances are, you don't have a PostScript printer at home, and HQP is a way of maximising picture quality on your QuickDraw workhorse. It doesn't support the CMYK separations needed for four-colour process printing, although that's not a problem unless you're preparing final images for print.

Artisan 6

Moving (slightly) more upmarket, we get to the recently released *CorelDraw 6* package. Now, *CorelDraw* itself isn't an image editor, but it does contain *Artisan 6*, which is. *Artisan* is a competent application and, if you've got the *CorelDraw 6* package, you may not need to look any further than this.

Overdrive

Live Picture has released a package called *Overdrive*. This is a cut-down version of its professional quality *Live Picture*, and it's mostly aimed at *Photoshop* users who want more powerful compositing tools than *Photoshop* provides. *Overdrive* works in a very interesting way. All operations take place on different layers, and you work on screen-resolution versions of your high-resolution files. When you've finished your masterpiece, you can "build" the final high-resolution file. This means that any operations happen very quickly, speeding up the creative side. *Overdrive* has some quite good colour correction tools, but it's slightly limited when it comes to pixel-level editing.

Live Picture

So is *Photoshop* alone at the top end of the market? Nope, not by a long chalk. For a start, there's *Live Picture*, the full version of *Overdrive*, which used to cost several

the Mac's classic applications. Along with *QuarkXPress* and *PageMaker*, *Illustrator* and *FreeHand*, it's an essential tool for many Mac operators at bureaux, design studios and printers all over the world. It enables you to do almost anything with an image, from basic cropping and colour corrections to sophisticated compositing and retouching.

With this latest version, it's obvious that Adobe has been listening to its customers. The new features aren't all flashy new palettes. Some of them are simply rethinks of existing functions, but if they make life easier (and they do), then they're just as welcome. The new keyboard shortcuts will prove a constant source of irritation for some time, until you've relearned the key combinations that by now are second nature to you, but you'll find it's worth persevering. Apart from this minor niggle, the new version is another major success – once more, *Photoshop* pulls ahead of the field.

Photoshop 4

The world's most popular image editing package gets even better, with a careful rethink of existing capabilities. You might have some trouble with the new interface, though – particularly the shortcuts.

Features	**93%**
Ease of use	**78%**
Documentation	**86%**
Value for money	**82%**
MF rating	**92%**

Jargon Busters

Alpha channel: an alpha channel is not usually visible, but instead contains transparency information. This can be a simple mask which blocks out areas of an image completely, or it could enable some of an underlying image to fade in from underneath. Alpha channels are widely used in the process of compositing.

Compression: graphic files can be very big indeed. A 300dpi scan the size of the page you're reading would take up around 26Mb. A few of these scans would soon fill a hard disk, and those pictures on your favourite Web page would take far too long to download. To get around this, many image formats use some form of software-based compression system to pack the image data into fewer bytes. Some pictures compress better than others, depending on the complexity of the image itself. GIF and compressed TIFF files both use a compression scheme called the Lempel-Ziv-Welch, or LZW scheme. LZW compression is reasonably efficient, and doesn't lose any information, so the unpacked file is just as good as the original. JPEG files use a "lossy" compression scheme, which can produce very small files at the expense of image quality. The smaller the file, the worse the image quality.

Interlacing: on a slow modem link, it can take a while to download an entire image. Normally, the top part of the image would arrive first, but it may not be obvious from looking at it what the image is. Interlaced images send the first line of pixels first, then, say, the eighth line, then the 16th, and so on down to the bottom of the image. Then they send the second line of pixels, then the 17th, and so on. In this way, you can quickly get an idea of how the picture looks. GIFs, Progressive JPEGs and PNG files can all make use of interlacing.

Post-rendering: most graphics applications execute a command as soon as you give it. If you apply a filter in *Photoshop*, for instance, the application will immediately get to work on it. Post-rendering applications, such as *Live Picture* and *xRes*, will only apply commands to the low-resolution image you can see on screen, although they will store a list of the changes that you've made. When you're satisfied that everything is just right, the application can be set to render the final image by applying these listed commands to the high-resolution images it has kept on disk. This makes it much quicker to work on big files and try out new ideas.

thousand pounds. Now it's available for under £1,000. It shares *Overdrive's* post-rendering system, so it's very fast when it comes to trying out ideas. Its brush tools are resolution-independent; no matter how far you zoom in, you'll never see a pixellated effect around their edges until you build your finished image. The brushes available include natural media types, like charcoal and felt-tip pens.

xRes

The other program sharing the rarefied atmosphere of the high-end is Macromedia's *xRes*. This application used to be produced by Fauve, and very flaky it was too. Macromedia bought *xRes* as the perfect image editor to complete its multimedia range, and has given it a thorough makeover. It's now much more stable, and looks very slick indeed. It has excellent retouching, compositing and editing tools, along with natural media brushes and, in terms of both features and quality, it can give *Photoshop* a good run for its money. *xRes* has an object-oriented approach to compositing. Graphic elements are imported as objects and can be moved around and edited separately, in a way that's similar to – but slightly more flexible than – *Photoshop's* layers system. But there's another trick up *xRes's* sleeve. It can also function in "xRes Mode", a post-rendering mode, much like *Live Picture* and *Overdrive*. This mode is powerful and makes compositing a much quicker task, but it uses masses of hard disk space to hold all the files it needs to create the finished image. *xRes* is *Photoshop's* equal in many respects, and it's only the latter's huge number of loyal users that keeps Macromedia's program at bay. With *xRes* being sold very cheaply as part of the *FreeHand Graphic Studio*, though, it'll reach a much wider audience, and in a few years *Photoshop* might have to look to its laurels.

Painter and Dabbler

All these photo editors are all very well, but what happened to the old skills of painting and drawing? They're alive and well and dominated on the Mac by Fractal Design's classic *Painter*. This is the program that made natural media painting tools practical on the Mac. It's not really an image editor so much as an image creator capable of imitating chalk, crayon, watercolour, you name it. If you've got any level of artistic ability, *Painter* is a wonderful way to create pictures using your Mac. Equally, if you have shallower pockets, *Painter* has a smaller sibling aimed more toward home use and called – appropriately enough – *Dabbler*. **MF**

Complete SE version of *xRes 2.0!* (Bonus CD not available in the US – sorry!)

Recommended software

Application	MF Review	MF Rating	Comments	Price	Contact
Color It!	–	–	v2.3.5 on MF31 Cover CD; v3.5 out soon	US$150	MicroFrontier (US) 00 1 515 270 8109
PhotoDeluxe	MF39	85%	*Photoshop* junior	£88	Adobe on 0181 606 4000
PhotoFix	MF23	83%	A solid, basic package	£199	Linographic on 01252 376103
Artisan 6	MF44	–	Part of the *CorelDraw 6* package (91%)	£465	Channel Market Makers on 01703 814142
Overdrive 1.0	MF43	82%	Uses proxy-type system for speed	£176	IMC on 01344 871344
Live Picture 2.5	MF38	85%	Uses proxy-type system for speed	£934	IMC on 01344 871344
xRes 2	MF38	91%	Can use conventional or proxy system	£645	Computers Unlimited on 0181 358 5857
Painter 4	MF35	91%	Definitive natural media paint package	£469	Computers Unlimited on 0181 358 5857
Dabbler 2	MF35	90%	Home-use natural media paint program	£59	Computers Unlimited on 0181 358 5857

PRICE	£528.75	**ON SALE**	Now	**CONTACT**	Computers Unlimited on 0181 358 5857	**WEB SITE**	http://www.unlimited.com/cu/prod/mac/mac_prod.html
MAC	**Processor:** 68040 • **RAM:** 12Mb	**POWERMAC**	**Processor:** any • **RAM:** 12Mb	**REQUIRES**	**System:** 7.1 • **HD space:** 25Mb • **Screen:** 640 x 480 • **Colours:** 256 •		
Extras: 4x speed CD-ROM drive • PostScript-compatible printer recommended							

FreeHand 7.0

If you're feeling the urge to get creative, then the latest version of this popular graphics package will be right up your street. Alistair Dabbs checks it out and discovers how it measures up.

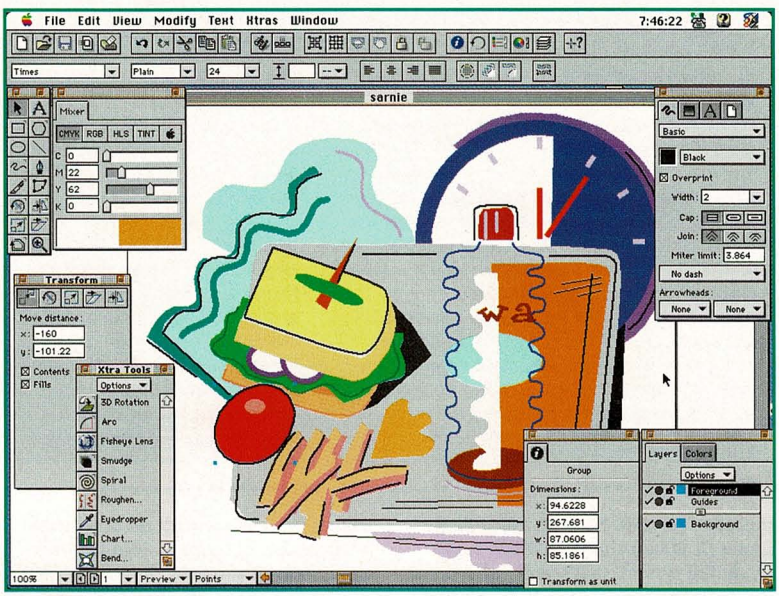
ON THE CD

Working demo (bonus CD not available in the US – sorry)

FreeHand 7.0 is here and, be in no doubt, it was worth waiting for. It is not the last word in vector illustration software, nor is it a compendium of complementary graphics packages like *CorelDraw*, but it is slicker, faster and all-round better than its award-winning predecessor, *FreeHand 5.5*.

Passing quickly over the number game being played between rivals Adobe and Macromedia (with respect to *Illustrator* and *FreeHand)*, it turns out that the jump to version 7.0 brings more than just another shovel-load of "features". Macromedia has redesigned the general approach to the *FreeHand* interface to bring it in line with the latest versions of its stablemates *Director* and *xRes*, and streamlined the way it can work with other graphics packages – not just Macromedia's.

Right from the outset, you'll notice that the ribbon bars and tool palettes have been smartened up with a cleaner look: the palettes can be joined together or snapped apart rather like in *Photoshop*, and they are easier to understand and manage all-round. The occasionally cluttered *FreeHand* workspace is now a thing of the past, and the approach certainly makes *CorelDraw's* myriad of stand-alone roll-up palettes seem wasteful. The palettes also favour drop-down menus to scrolling lists, again keeping the screen space they occupy to a practical minimum.



***FreeHand's* floating palettes have been given extensive drag-and-drop capabilities, plus an overall facelift. You can combine palettes and split them up in a *Photoshop-like* manner, cutting down on clutter, and they're generally easier to understand and manage.**

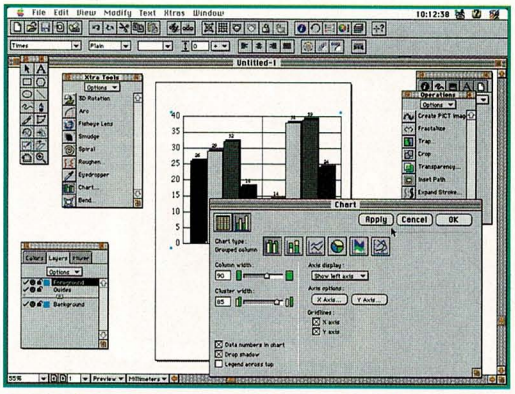
Placed bitmaps don't look very nice but these rough previews speed up the screen redraw immensely. This is in sharp contrast to certain *Photoshop* plug-ins, which can take a long time to load.

Colours and blends

What's more, the application of colours is much more intuitive now, thanks to palette-based (as opposed to dialogue-based) colour selection – you can simply drag colours from the palette directly onto strokes and fills, regardless of whether they are selected or not. In practice, dropping colours into the right places is a little hit-and-miss at times, so it is best to zoom in before trying – even if the areas you want to colour appear to be obviously defined.

Both types of blends – gradient fills and objects themselves—are very well featured in this new release. Gradients can be built visually by dragging colours you create into any position along a vertical bar on the Gradient Fill palette, and their properties can be adjusted by sliding and rotating controls on that palette. Objects can also be blended using one of *FreeHand's* Xtras tools, and they can accommodate multiple steps and run happily along any user-defined path. The intermediate steps continue to update as you alter the key objects – similar to the way *CorelDraw's* object blends work – which is great for experimentation. You can change your mind at any time about shape, colour, the number of transitional steps and so forth, without having to go through the process of reconstructing the blend manually.

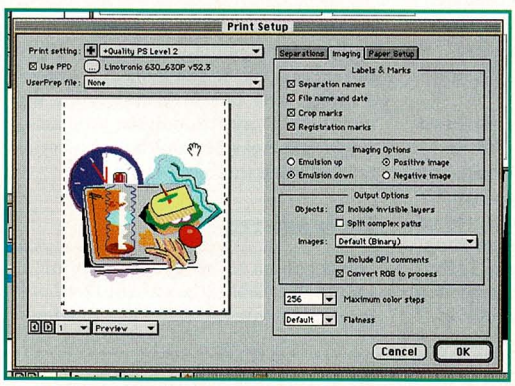
Of course, there are limitations to what kind of object you can blend – but the error message thrown at you by *FreeHand* when you try to blend an unblendable set of objects is not very helpful. Nor is the manual, which, although brief and friendly, doesn't seem to want to recognise the existence of error messages. It's only deep down in a Read Me file, for example, that you discover that the **Multicolor Fill** Xtra, which supports *FreeHand 5.0* gradient fills, is disabled by default. Again, you can encounter some unexpected error messages



The graphing tool is a great deal easier to understand than *Illustrator's* fiddly alternative, if not quite as well featured.

when converting text to outlines if you are using a version of Adobe Type Manager prior to 3.5, but a recent copy of ATM that would solve the problem is not included in the package.

There are two palettes of Xtras (these being Macromedia's plug-in filter technology): Xtras Tools and Operations. The Xtras Tools encompass unusual special vector effects such as 3D rotation, Fish-eye Lens and Smudge. Operations gives you easy access to common effects such as Trap, Crop and Envelope. Untypically, the icons representing each tool are very helpful in *FreeHand 7*, which Macromedia should be congratulated for.



***FreeHand 7* gives you this great Print Preview dialogue, in which you can drag awkward layouts into place and more.**

The Xtras technology also supports *Photoshop* plug-ins, enabling you to actually work on imported bitmap images alongside vectors, rather than just placing them on a layout. Although Adobe's own plug-ins prior to *Photoshop 3.0.5* are not supported, practically all third-party filters are by default. Importing bitmap images into *FreeHand* is a RAM-chomping exercise, but the on-screen preview is kept at low resolution to keep screen redraw fast – and *FreeHand 7.0's* screen redraw is very fast indeed.

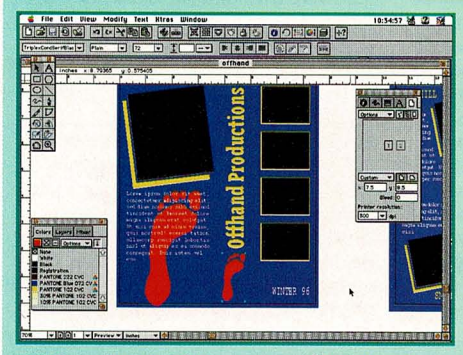
By contrast, *Photoshop* plug-ins run at half-cock from within *FreeHand*. This won't be a great problem on a fast PowerMac, but on any 68040 machine, you could be waiting for up to a minute just for the filter dialogue to load. A much better idea is to configure *FreeHand's* Preferences so that double-clicking on any imported bitmap fires up an external bitmap graphics package of your choice – and this automatically re-imports the edited image once you have finished. *FreeHand* even scans your hard disk to find which packages you have that might be appropriate, although in our case it inexplicably listed *Lotus Notes 3.0* (certainly not a graphics package!) as one of the candidates.

Perhaps the best single feature in the entire upgrade is "Find and Replace". This works for text and graphics equally, hunting down items according to criteria you select, then optionally altering them according to further user criteria. Think about it, and you realise its huge potential: you can find objects of a particular shape, colour or any other individual or combined set of attributes, and then replace them with updated objects in an instant – even if your document has 100 pages. This is more intelligent than the cloning features found in other packages, and the kind of feature that makes *FreeHand 7.0* a must-have upgrade.

Extra Xtras

Other welcome new features include Roughen and Bend Xtras, which work rather like *Illustrator's* Punk and Bloat – the first "roughens" any edge you select, and the second makes text curved ➤

Find and Replace

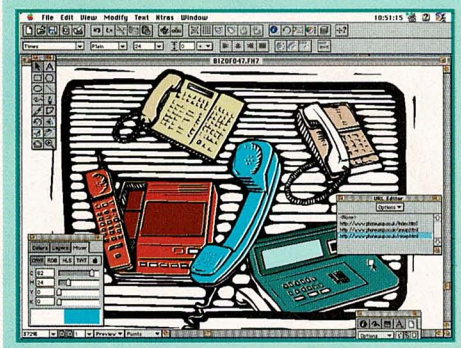


1 Some idiot briefed you to use a foot logo for a company called Offhand Productions, and now you have to change every instance at all sizes across this 12-page brochure. No problem.

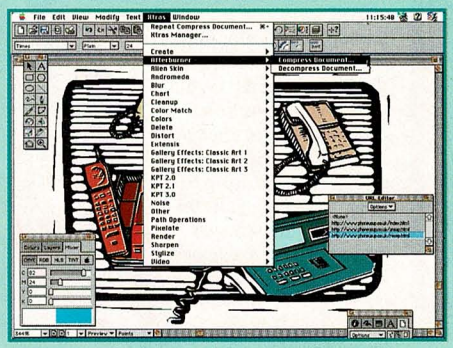
2 Just call up the "Find and Replace" dialogue, and paste in the object you want to replace (the foot logo) and the one you want to replace it with (a hand logo) – Off*Hand* Productions, see?

3 *FreeHand* has now replaced all instances of that erroneous logo. This feature has its limitations, of course, as the resizing option proves here with unwanted horizontal scaling.

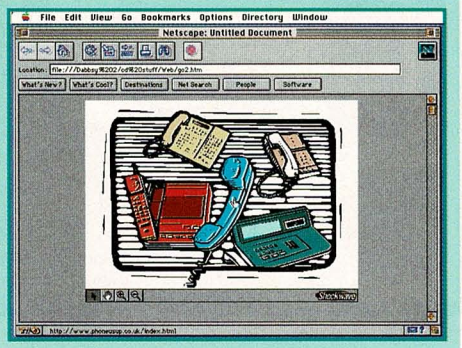
ShockWave for FreeHand



1 You can create an image-mapped, scalable ShockWave document for your Web site using any piece of artwork (in this instance, some clip art from the *FreeHand 7* CD). Use the URL Editor to type in some Web addresses, then literally drag-and-drop them onto objects in the artwork.



2 Save the file and then select **Afterburner...** and **Compress Document** from the **Xtras** menu. The artwork will be saved with a new name as a ShockWave-enabled file. Embed the filename in any HTML document as you would normally with the **<EMBED>** tag.



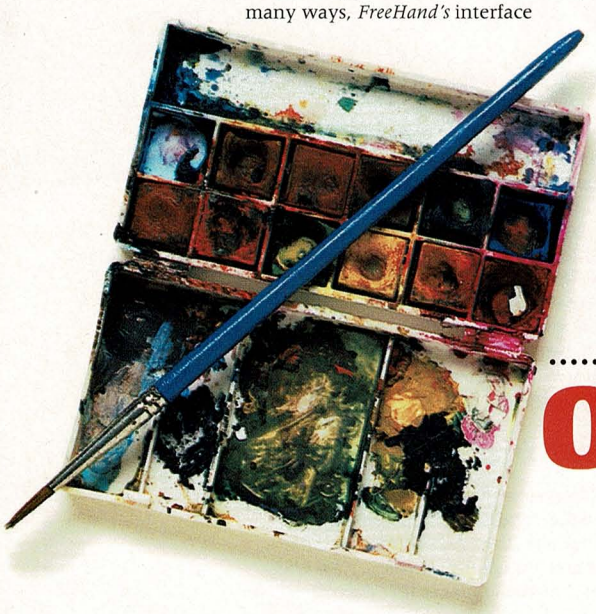
3 Open up that Web page with either *Netscape Navigator* or Microsoft's *Internet Explorer* (armed with the ShockWave plug-in provided on the *FreeHand 7* CD), and your artwork appears, fully scalable, resolution-independent and complete with hotlinked objects.

and blown-up. Another catch-up exercise with *Illustrator* can be seen in the new Chart Xtra, which lets you create simple line, pie and bar charts. In fact, in many ways, *FreeHand's* interface (tabbing freely between a mini spreadsheet and graph attributes) is far superior to the rather fiddly *Illustrator* approach, although the latter does offer more options for replacing bars with stretchable objects. To be honest, using either program for creating charts is pretty much an act of desperation, so it's not fair to judge too harshly.

Additionally, *FreeHand 7.0* also takes a swipe at *CorelDraw* with its beefed-up "Autotrace" tool for turning bitmaps into editable vector artwork. In the event, *FreeHand* can't match the sheer speed of *CorelDraw* when it comes to autotracing, but it's good to see the feature included in the program, especially in comparison to *Illustrator* which offers nothing even close. Another disappointment is that *FreeHand 7.0's* promisingly named Transparency Xtra is just a Pathfinder-type tool which creates an intermediate coloured object where two other objects overlap: there is no true transparency option as in *CorelDraw*. Oddly enough, it's the small things in *FreeHand* that make it a winner over *CorelDraw*, such as the way just about every action in the program (including tool selection) has an associated keyboard shortcut.

Internet-ready?

You should note that the claims printed on the *FreeHand 7.0* box about *FreeHand's* Internet features actually refer to a few



Other programs

The Mac is, not surprisingly, well served with vector-based illustration software, and you can buy products to satisfy the occasional designer and the professional alike. Here's a bird's eye view of what's available today.

ON THE CD

Demos of five top illustration packages (sorry, the bonus CD is not available overseas)

Adobe Illustrator

FreeHand's main rival, *Illustrator* (£412) is due for an upgrade in the next few months. But even at version 6.0, *Illustrator* is for many users the mainstay of Mac-generated artwork for print publishing. *Illustrator* was the first full PostScript-based drawing package to hit the market, and the product continues to benefit from Adobe's privileged position in the development of this technology. *Illustrator 6.0* also includes *Adobe Dimensions 2.0* (previously £116), a utility for extruding and rotating vector artwork into 3D prior to importing into the main application.

Canvas

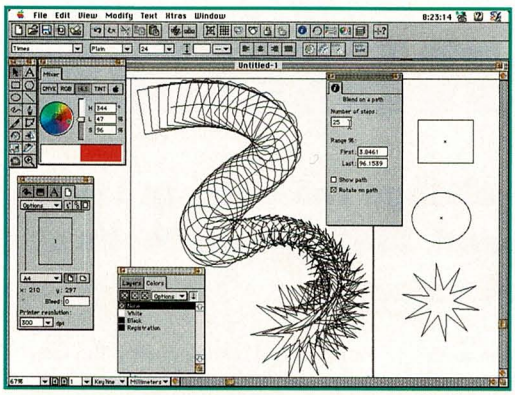
Contrary to popular belief, the market for illustration software is not a two-horse race between graphic giants Adobe and Macromedia. For example, Deneba's *Canvas 5.0* (£288) offers not only a viable alternative to both *Illustrator* and *FreeHand*, but also boasts an unusually high level of integration between bitmap editing and vector drawing in one package. Although not always seen as a professional's choice because of both its simple interface and lack of PostScript punch, *Canvas 5.0* is a seriously powerful illustration application in its own right.

CorelDraw

Surging up from the rear is *CorelDraw 6* (£464) from the market leaders in the PC graphics arena, Corel. *CorelDraw 6* brings practically all its powerful features over from the PC version, including unrivalled object-fill tools and unique transparency capabilities. It's a value-packed product, accompanied by a big grab-bag of other graphics programs, including a bitmap editor and a licensed version of 3D program *Ray Dream Designer* – not to mention heaps of clip-art. All this comes at a hardware cost, though: *CorelDraw 6* is PowerMac-only and requires over 20Mb of RAM and 80Mb of hard disk space.

LightningDraw GX

Much lighter requirements are demanded by Lari Software's *LightningDraw GX 1.01* ($299). The clue is in the name: it is fundamentally just a user interface to QuickDraw GX, the enhanced version of the Mac's built-in graphics engine. This makes for a small but unusually powerful graphics package that will run on any GX-enabled Mac. For example, the heavy graphics engine used to create transparency effects in *CorelDraw* is unnecessary in this case as it is already part of GX by default – and *LightningDraw* simply gives you the front end to make use of it.



Object blends are very easy to set up, even across multiple objects and irregular paths. The intermediate steps update as you change the attributes of your key objects.

export formats. For example, you can now save your artwork as GIFs (not animated, mind) and JPEGs directly from *FreeHand* with no extra graphic conversion utility required.

More interesting, though, is the ability to save in ShockWave format, which means that you can put scalable vector artwork up on your Web pages, complete with image-mapped objects pointing to other URLs. Contrary to expectations, these simple vector ShockWave images end up no larger than GIFs in many cases, but naturally remain resolution-independent, so you can zoom right into the detail. The size is also comparable with *Acrobat* PDF format with URL links in place.

Internet artists get a lot more than ShockWave in the package: *FreeHand* now supports a Java-based scripting language in addition to AppleScript. Artists working for print will welcome the expanded range of colour models thrown in, including the increasingly popular six-colour process ink system, Hexachrome. And if you're just looking for lots of freebies, you can revel in the 500 templates, 500 fonts and 10,000 clip-art images included on the CD. In our opinion, the templates are a tad ugly and much of the clip-art is less than useful, but it's a matter of taste.

If you're looking to buy an illustration package for the first time, you should give *FreeHand 7.0* serious consideration; it is not as powerful as *CorelDraw* in places, but requires half the RAM and a quarter of the disk space. If, however, you're currently using another professional illustration package, you might want to hold off. *FreeHand 7.0* might be the best package of its kind you can buy today, but it's not so unquestionably amazing as to make you want to jump ship and spend time and money retraining. Then again, if you are even remotely familiar with *FreeHand*, don't think twice – upgrade now.

FreeHand 7.0

A significant improvement on the previous version, *FreeHand 7.0* is well worth upgrading to – but perhaps not so brilliant as to make it worth migrating to.

Features	**80%**
Ease of use	**85%**
Documentation	**75%**
Value for money	**75%**
MF rating	**82%**

CorelDraw

This leading PC vector art package arrived on the Mac with a splash a few months ago, and comes in a bundle containing a huge range of functions and resources. For a full review, see MACFORMAT 44. If you missed that issue, see page 144 for our back issues service.

Jargon Busters

Vector graphics: **Artwork made up of perfect lines and curves, each defined by length and direction between two plotted points.**

Resolution independent: **Vector graphics are said to be resolution independent because no bitmap information is used: each time you enlarge or reduce the size, the lines between points are redrawn at the new resolution.**

Bézier curve: **A type of vector curve defined as a line influenced away from straightness by two external attractor points. Named after a French mathematical engineer.**

Node: **Another term for a point at either end of a vector segment. A complex curve may have many nodes, which are normally the points at which Bézier attractrators can be adjusted.**

QuickDraw GX: **Apple's new (but optional) software graphics engine for the Mac. It expands the potential for font designers and supports many special features, including fast screen redraw and colour transparency.**

PostScript: **A resolution-independent graphics description language, defined as points, vectors and fills. PostScript Level 3 is due soon.**

Expression

If *LightningDraw* seems to offer a unique approach to illustration software, take a look at Fractal Design's *Expression 1.0* (£351). It's a vector-based package that applies real-media effects to strokes – you work in vectors, yet the artwork looks like you created it in a paint package like *Painter*. But, unlike a paint package, your artwork remains resolution-independent, and file sizes are a tiny fraction of what you'd expect. Watch for our review soon.

SmartSketch

The entry-level of 2D vector art on the Mac isn't quite so well covered, and is now practically dominated by FutureWare's *SmartSketch* (£59). *SmartSketch* dismisses the traditional Bézier approach to illustration, instead just letting you draw freehand, drag curves into shape, and rub out bits you don't want using an erase tool. Incidentally, *SmartSketch* is the only vector package on the market to fully support Wacom's EraserPen.

IntelliDraw

If you can still find it, Adobe's *IntelliDraw 2.0* (£59) is well worth checking out. Less of an art package than a clever object arranger, *IntelliDraw* enables you to bash out brochures, business charts, floorplans and the like in record time. This is all achieved using simplistic vector techniques and automatically resizing clip-art. Of course, if you want the opposite extreme of functionality, you could try the highly capable technical illustration package *IsoDraw 4.0*. Bordering on the CAD market, *IsoDraw* is a snip at £3,600.

One last word of advice before you reach for your credit card: look around for "competitive upgrade" deals. The main players in the 2D illustration market are constantly at each other's throats, so you might be able to purchase a full package for £150 or less – purely on the basis of upgrading from another company's product that you just happen to own, no matter how old it is. **MF**

Recommended software

Program	MF Review	MF Rating	Comments	Price	Contact
Illustrator 6	MF37	80%	Intuitive, but tool palettes fill the screen	£412	Adobe, 0181 606 4000
Canvas 5.0	–	–	Powerful, integrates vector and bitmap art	£288	Principal Distribution, 01756 704040
CorelDraw 6	MF44	91%	If you have the RAM, great value bundle	£465	Channel Market Makers, 01703 814142
LightningDraw 1.1	MF36	89%	Unique GX tool, with superb transparency	$299	Lari Software (US), 00 1 919 968 0701
Expression 1.0	–	–	Vector art with natural media paint effects	£351	Principal Distribution
SmartSketch	MF30	89%	Vector plus bitmap art; limited type control	£59	CGS Computerbild, 0181 679 7307
IntelliDraw	–	–	Simple vector art editor	£59	Adobe
ClarisDraw 1.0	–	–	Surprisingly versatile drawing program	£152	Claris, 0345 413060

Added dimensions

The field of 3D Mac graphics is set to change radically in 1997, thanks to the PowerMac's surge in speed. Marc Woods looks at the current range and the additions on the way.

ON THE CD

12 usable demos including *Infini-D* and *3D World 2* (sorry, not available on overseas copies).

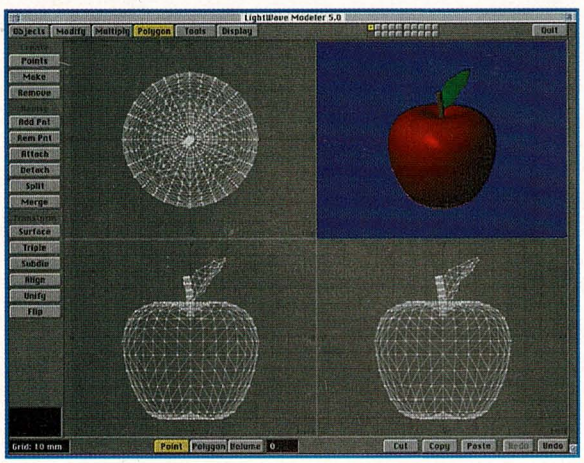
For several years 3D graphics have been gaining momentum in mainstream media, culminating in the computer-generated film *Toy Story* last summer. 3D graphic tools are becoming faster and cheaper at a breathtaking pace thanks to PowerMacs' dramatic speed improvements. Over the last year existing 3D packages have all had major updates, and several new products are due soon.

This growth means you need a mighty Mac for 3D: the practical minimum is a PowerMac with 16Mb of RAM – 32Mb or more to really exploit these programs.

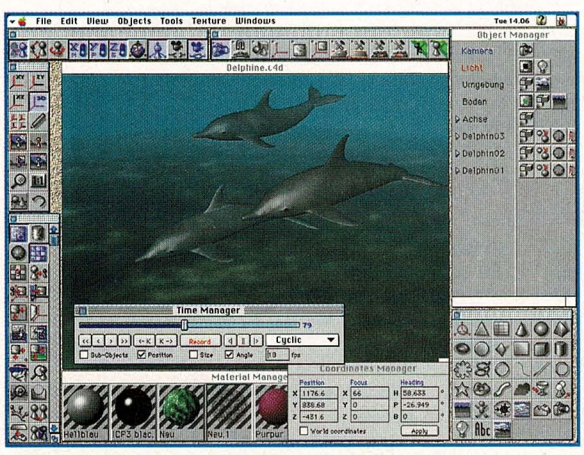
To choose a 3D package, consider the three distinct tasks in 3D graphics:

- **Modelling** is the process of creating the shapes and landscape that form the basis of your scene.
- **Rendering** adds light and texture to your shapes. Different calculation methods such as raytracing and Gouraud have different advantages: raytracing offers the best detail, but will take longer.
- **Animation** tools enable your Mac to take two similar still images and create more pictures in between them as frames to make a moving sequence.

The best sellers are studio packages boasting tools for all these tasks (most within one program, some using separate renderers). Let's look at 3D's big guns:



An industry leader on other computer formats like the Commodore Amiga, *LightWave* is coming to the PowerMac soon.



***Cinema 4D* is new to the UK but looks like it has lots to offer.**

LightWave

£1,169, AMG FX on 0171 468 3452

The biggest news this year for many 3D professionals is that *LightWave*, a flagship program on many other types of computer, is coming to the Mac soon, although judgement on the Mac version will have to be reserved until it is out.

It's used on TV shows like *Star Trek: Voyager*, so it'll be sure to make a huge impact, but its interface is a far cry from the typical Mac look and feel you're used to, which may count against it.

LightWave has a long history and a very impressive portfolio, especially through work done on Silicon Graphics equipment: this will provide the benchmark for how close Mac are to becoming true video graphics production tools. For areas like multimedia and games, however, *LightWave* could be a good choice.

Cinema 4D

£699, HiSoft on 01525 718181

Also new for January, this is a full 3D studio, with all the features of the other packages (although it lacks the particle renderers coming to some advanced programs) and a very intuitive interface. Above all, though, it is *fast*. In our tests the raytracer proved about six times faster than that of *Strata StudioPro* on the same 3DMF model (neither program's native format), while producing similar results for image and texture quality. But can *Cinema* match the might of *LightWave?* Watch for full reviews when they're out.

Strata StudioPro

£1,169, Principal on 01756 704040

Strata StudioPro has stood the test of time. It's been used for titles like the famous *Myst* and much of Dorling Kindersley's 3D work. Version 2 is due within weeks, and has a host of new features including particles like fire and dust, a redesigned interface, faster renderer and modelling facilities.

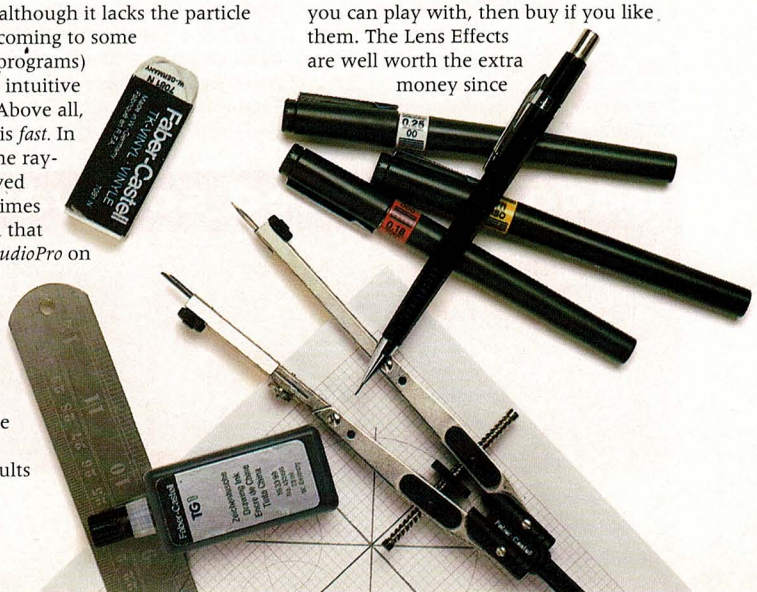
From the work-in-progress we've seen, it seems a particularly good upgrade, offering as much as any other major package, though it may still prove a little pricey.

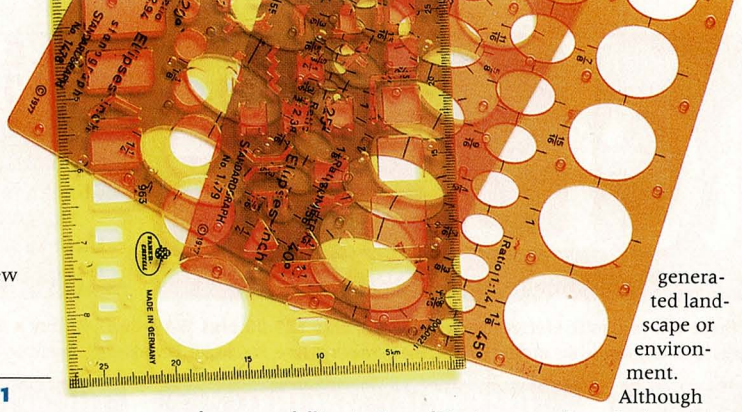
StudioPro 2 will ship with QuickDraw 3D 1.5, Apple's latest upgrade to its own system aimed at bringing a standard 3D format to graphics. It has a built-in plug-in system enabling developers to produce extra renderers and support for accelerator cards. It also boasts big core speed increases, though many products will have to be upgraded further to take advantage of new facilities or even to be able to use it!

Ray Dream Studio

£222, Principal

Studio is a remarkable piece of software: it offers more modelling facilities than many other products, but little idiosyncrasies tend to put the pro's off it, though it remains one of the best introductions to 3D there is. *Studio 4.1* comes with several third party plug-in demos, which you can play with, then buy if you like them. The Lens Effects are well worth the extra money since





lens flares are one of the few features *Studio* lacks.

Infini-D

£469, Gomark on 0171 731 7930

Specular's mainstream program offers everything you might need at the lower end of the 3D creation spectrum. *Infini-D 3.5* is a very competent package capable of producing results quickly, although it does feel basic when you are using it.

Extreme 3D

£586, Computers Unlimited

Macromedia's *Extreme 3D* is relatively new and the interface still feels quirky if you're used to other 3D tools. Perhaps the forthcoming version 2.0 will give the program the refinements it needs, but it's still fine right now for multimedia compositions, where the animation's emphasis isn't on the render or object quality. Newly added support for QuickDraw 3D will offer the new version of *Extreme 3D* a distinct advantage over its predecessor.

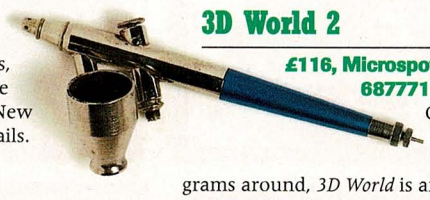
Other complete 3D studios

■ **Sculpt 3D (£409, Gomark)**

One of the faster ray tracers around, *Sculpt 3D* also offers a full selection of modelling and animation tools.

■ ***PixelPutty 2* (£586, RenderMation on 0181 341 5484)**

A complete 3D package with tools for creating naturally flowing designs, *PixelPutty's* revision is due out shortly. See What's New on page 24 for more details.



Specialist tools

You also have a wide choice of more specialised tools to complement the all-purpose 3D giants. Computer Aided Design (CAD) packages enable to you make models with pinpoint accuracy, for example, while other tools are crafted to create a particular type of 3D graphic, specialising in landscapes or people.

Detailer

£328, Computers Unlimited

Lighting and textures invariably make or break a final composition, no matter how good your modelling is. Fractal Design has addressed this with *Detailer*, which enables you to create and apply textures onto 3D models. To do this, *Detailer* takes the idea of offering natural media tools like paintbrushes or chalk, made famous by Fractal stablemate *Painter*. The facilities are good and the effects are great, but you'll need plenty of memory to take advantage of these on larger monitors. No modelling facilities are provided within *Detailer*, but you do get a free copy of *Ray Dream Designer* (the modelling part of *Studio)*, plus plug-ins so you can swap models between the two programs.

Poser

£234, Computers Unlimited

Fractal's second novel 3D tool is *Poser*, with version 2 due any day. *Poser* gives you a virtual life model, ideal for 2D illustrators and 3D modellers alike. You can make male or female figures, adjust their proportions, add clothing, and even give them props to carry, then animate the results to produce as a QuickTime movie. You should really judge *Poser 2* by the number of uses you can devise for it, but it looks like a godsend for some.

3D World 2

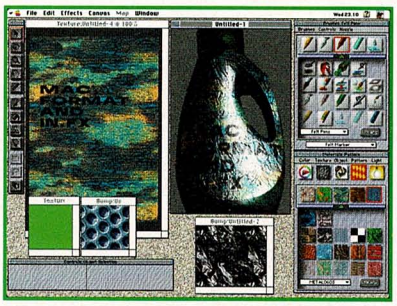
£116, Microspot on 01622 687771

One of the most affordable programs around, *3D World* is an interesting shell for QuickDraw 3D, enabling you to build models using the format's distinctive features. Although pro's will find its rendering options too limiting, anyone will find it easy to create models and perform basic renders quickly, making it a great introduction to 3D and, for more experienced designers, the 3D equivalent of a convenient sketchpad for ideas.

Bryce 2

£234, Principal

There are no words to describe how good *Bryce* is if you want a realistic computer-generated landscape or environment. Although *Bryce* deviates from the standard Mac interface style, it is extremely ease to use rather than being annoyingly different. *Bryce* is a refreshing change: it's both unique in its abilities and capable of far more complex modelling than you would think. Get to know *Bryce* and it will become far more of an all-purpose tool. This year we are promised *SuperBryce*, a version of *Bryce* designed specifically for animating your virtual worlds.



Fractal Design's *Detailer* is marvellous for painting onto your models.

Extra 3D tools

■ ***Design Workshop* (£581, Gomark)**

Made specially for architects, *Design Workshop* offers fast CAD visualisation of ideas and tools for analysing light distribution within the space you've made.

■ ***ElectricImage* (£7,044, Gomark)**

Specially designed for rendering and animating technical models like buildings and vehicles, *ElectricImage* is packed with special effects , making it popular with film-makers.

■ ***form•z RenderZone* (£1,315, Gomark)**

Another professional-level package, *RenderZone* offers a modeller and renderer. You can also get the modeller separately as *form•z.*

■ ***Logomotion* (£93, Gomark)**

Specular's 3D experience is applied to a package made specially for designing and animating logos and other punchy graphic forms in 3D.

■ ***MiniCAD 6* (£699, Gomark)**

Industrial designers and architects swear by this CAD package. Plan out your model as a 2D blueprint, then build up into a full 3D model you can fly around using the program's animation tools.

■ ***Sketch 2.0* (£586, Gomark)**

Providing a bridge between 2D drawing programs like *FreeHand* or *Illustrator* and 3D modellers, *Sketch* is great for package design or graphics, for example.

■ ***Tree Professional* (£512, Gomark)**

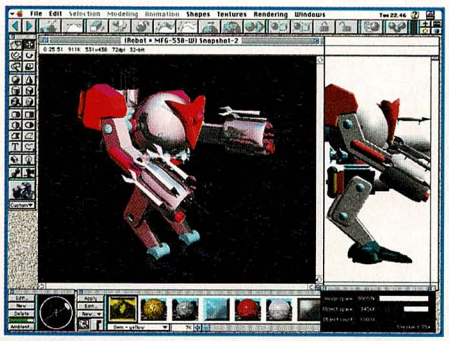
Perhaps the ultimate in specialisation, *Tree Professional* actually enables you to create totally authentic foliage. **MF**

See also...

3D packages receiving complete reviews in MACFORMAT recently include *Detailer* in MF46, *3D World 2* in MF45 and *Infini-D 3.5* in MF42. If you missed any of these, see our back issues service on page 144. Watch for full reviews of forthcoming 3D programs in MACFORMAT as soon as they are released.

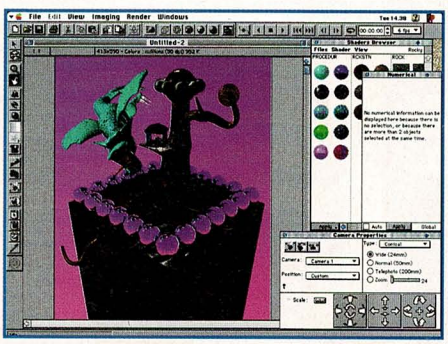
Also also...

Fancy adding 3D to your Web sites? There are utilities to enable you to do even that. See our reviews of *3D Website Builder* and *Specular 3D Web Workshop* in MACFORMAT 44.



***Strata StudioPro* has been steadily improving and is set for a further revamp.**

***Bryce 2* is great for creating majestic landscapes, but there is more to it...**



***Ray Dream Studio* is now under Fractal Design's control, so look for more natural media tools in it.**

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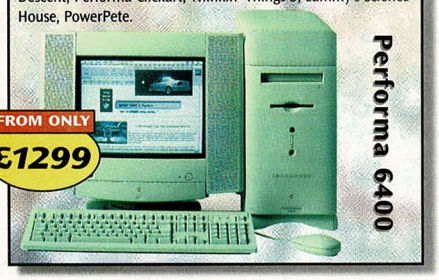
SOFTWARE - Mac OS 7.5.3, Best of European Soccer, Apple Telecom 3.0, Ultimate Human Body, Apple Video Player, Aladdin Activity Centre, Lion King Story Book, Acrobat Reader, Toy Story Preview, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Claris Impact, Claris Organiser, Internet Connection Kit, MacLink Plus, Full Throttle, HyperCard Player, Descent, Performa Clickart, Thinkin' Things 3, Sammy's Science House, PowerPete.



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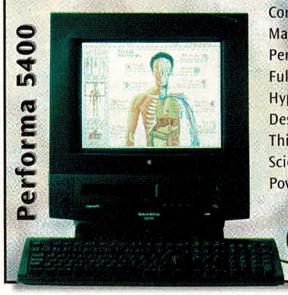
SOFTWARE - Mac OS 7.5.3, The Best of European Soccer, Apple Telecom 3.0, The Ultimate Human Body, Apple Video Player, Aladdin Activity Centre, 120 Letters, Lion King Story Book, Acrobat Reader, Toy Story Preview, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Internet Connection Kit, MacLink Plus, Performa Clickart, Full Throttle, HyperCard Player, Descent, Thinkin' Things 3, Sammy's Science House, PowerPete.



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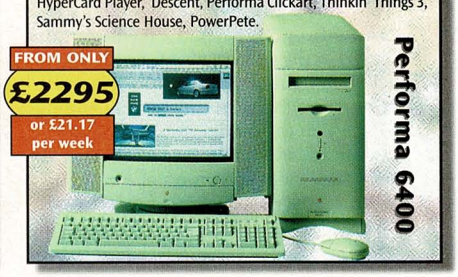
SOFTWARE - Mac OS 7.5.3, Avid Cinema, Adobe Photodeluxe, PowerGoo, Cubasis AV, Adobe PageMill, Dabbler, Best of European Soccer, Apple Telecom 3.0, Ultimate Human Body, Apple Video Player, Aladdin Activity Centre, Lion King Story Book, Acrobat Reader, Toy Story Preview, At Ease, Grolier MultiMedia Encyclopaedia, ClarisWorks4.0, Claris Impact, Claris Organiser, Internet Connection Kit, MacLink Plus, Full Throttle, HyperCard Player, Descent, Performa Clickart, Thinkin' Things 3, Sammy's Science House, PowerPete.



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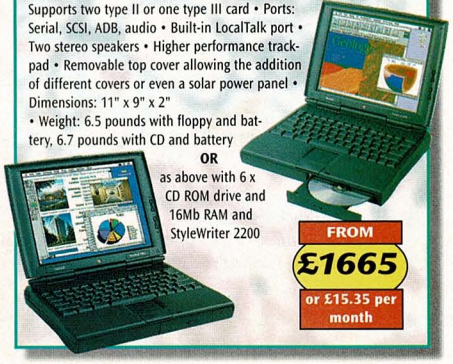

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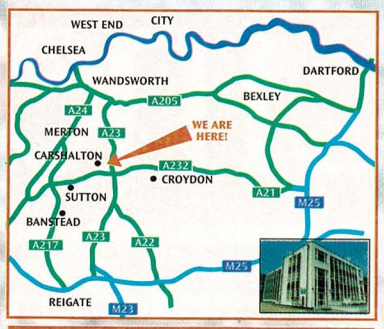

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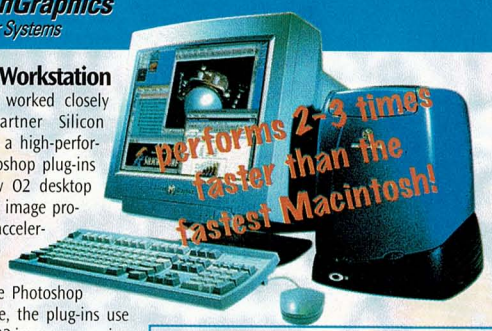
Adobe Systems has worked closely with long-time partner Silicon Graphics to develop a high-performance set of Photoshop plug-ins that utilise the new O2 desktop workstation's special image processing hardware to accelerate many Photoshop functions.

Known as the Adobe Photoshop Performance Package, the plug-ins use the Silicon Graphics O2 image processing hardware to help perform the required operations many times faster than the main CPU -including rotating, resizing, blurring, sharpening, and colour space conversion. Which means the performance of accelerated operations of Adobe Photoshop on Silicon Graphics workstations is two to three times faster than on the currently available Apple PowerMac 9500, tested with the Adaptive Solutions Powershop accelerator card installed.



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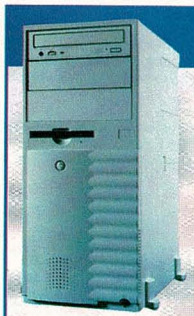

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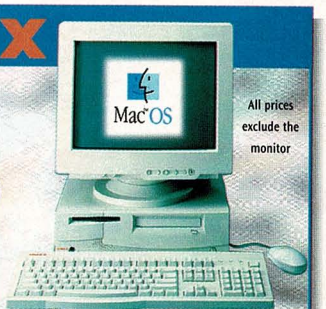

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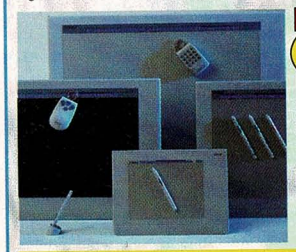

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UGCRM	CorelDraw 6.0 (trade in from any graphics package)	£99.00
ADIM	Dimensions (Adobe's 3D extension for Illustrator)	£99.00
DBLR	Dabbler 2.0 (great beginners paint progra,)	£49.00
PSER	Fractal Design Poser (create human figures)	£125.00
FRND	Freehand 7.0 (professional PostScript drawing & text)	£299.00
INFD	Infini-D 3.1 (leading 3D modelling & rendering tool)	£349.00
ILST	Illustrator 6.0 (pro PostScript drawing, text & layout)	£295.00
KPTG	KPT Goo (distortion special fx for Photohop images)	£45.00
KPTK	Kai's Power Tools 3.0 (amazing filters for Photoshop)	£89.00
KPTV	KPT Vector Effects (Illustrator/FreeHand FX Plug-Ins)	£89.00
KPTC	KPT Convolver (adds power and ease to Photoshop)	£89.00
KPTD	KPT Bryce 2.0 (3D Skies and landscapes)	£129.00
MIMx	Maps in Minutes (wide range in Illustrator or FreeHand)	from £75.00
MCAD	MiniCad 6.0 (native professional 3D design & analysis)	£495.00
RYDS	Ray Dream Studio (3D design, modelling, animation)	£199.00
PHOD	PhotoDeluxe (cut-down PhotoShop for non-professionals)	£79.00
PHSP	PhotoShop 4.0 (special offer price - while stocks last!)	£395.00
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QKXZ	Quark Xpress 3.32 (inc. free QXTools)	£649.00
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TYSL	TypeStyler (manipulates PostScript fonts)	£95.00
UNIQ	Uniqorn (create Java content easily)	£499.00

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ECS5	Epson Stylus Colour 500 (brilliant quality colour inkjet)	£219.00
ECSH	Epson Stylus XL A3 (A3 colour inkjet, non PostScript)	£895.00
HP34	HP DeskJet 340 (portable colour inkjet)	£179.00
HP60	HP DeskWriter 600 (superb new inkjet, Appletalk)	£149.00
HP66	HP DeskWriter 660c (colour and mono in one)	£215.00
HP85	HP DeskJet 850c (higher speed, 600dpi mono, 300 clr)	£335.00
PWPR	PowerPrint (driver and cable for non-Apple printers)	£79.00
STYS	StyleScript (print PostScript to StyleWriters)	£79.00

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S21X	Radius PrecisionView 21	£1495.00
SN15B	Sony 15" Trinitron Monitor CPD 15SF1	£335.00
SN17B	Sony 17" Trinitron Monitor CPD 17SF2	£565.00
FRMF	Formac 17" Trinitron Colour Monitor	£419.00

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AFSS	Agfa SnapScan (300 * 600dpi, 24 bit colour)	£275.00
AFST	Agfa StudioStar (600 * 1200dpi, 30 bit colou)	£645.00
ST2A	Nikon ScanTouch AX 210 (1200 dpi desktop inc Photoshop)	£675.00
COOL	Nikon CoolScan II (35mm slide scanner)	£895.00
UVSA	Umax Vista S6 (600dpi)	£269.00
UMPLP	Umax PowerLook II Pro (36bit 1200*600dpi)	£1599.00
OMPP	OmniPage Pro 6.0 (OCR directly into applications)	£369.00
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FDSA	Fuji DS7 (MacUser Best buy winner)	£499.00
KD25	Kodak DC25 Digital Camera (point & click, auto exposure)	£329.00
KD50	Kodak DC50 Digital Camera (autofocusing, 3 * zoom)	£625.00
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MROL	Motorola 3400 (MacUser Best Buy 28.8 baud)	£99.00
SPEA	SupraExpress 33.6 (ADB powered 33.6 baud)	£115.00
TLPP	TelePort Internet Edition (33.6 modem from Global Village)	£129.00

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ANET	LocalTalk (AppleTalk) connector kits	£14.00
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FTNP	PhoneNet connector kits	£12.00
FEHD	EtherLan Hub 5 (5 port Ethernet 10baseT Hub)	£65.00
FAIR	Farallon AirDock (Infra Red LocalTalk connector)	£69.00
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ASPA	AsantePrint (Ethernet to AppleTalk printer router)	£249.00
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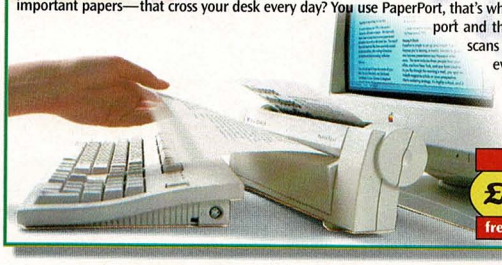

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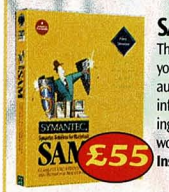

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MRPHB	**Morph 2.5** (morph from one QT movie to another)	£75.00
MDRT	**MacroMedia Director 5.0** (key multimedia tool)	769.00
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VIDD	**Video Director 2.0** (edit your home videotapes)	£85.00

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WCU4	**Wacom UltraPad A4** (professional stylus and tablet)	£359.00
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SPED	**SpeedDoubler** (greatly improves performance)	£45.00
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SFDL	**Stuffit DeLuxe** (famous file compression program)	£65.00
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HDTT	**Turbo Toolkit** (speeds up startup and Finder)	£45.00

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MPRA	**MacPrefect** (secures most aspects of the Finder)	£45.00
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NMBM	**NumberMaze** (award winning arithmetic tutor)	£41.03 (£35)
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TYEN	**Typing Instructor** (good training from basics to touch)	£29.38 (£25)

CD ROM

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FNARD	**Fine Artist** (great fun paint program)	£25.85 (£22)
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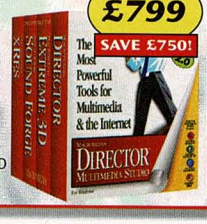

ENTERTAINMENT

BEST SELLING GAMES ON CD

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MTHCD	**Marathon 1 and 2 Bundle** (can you resist?)	£31.73 (£27)
WRGCD	**Warcraft II** (detailed graphics, haunting sound)	£37.61 (£32)
ACSOC	**Actua Soccer** (set to be number one for sure)	£34.08 (£29)
DOM2	**Doom II** (you may have heard of this game!)	£34.08 (£29)
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SIMCC	**Sim City 2000 Collection** (with extra goodies)	£41.13 (£35)
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BRTM	**Buried in Time** (sequel to Journeyman Project)	£34.08 (£29)
IFDCD	**In the First Degree** (play a murder prosecutor)	£37.61 (£32)

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A10A	**A10 Attack** (the best flight sim around)	£45.83 (£39)
F18H	**F/A18 Hornet** (from the creators of Hellcats)	£57.58 (£49)
ITG10	**10 Intelligent Strategy Games** (backgammon...)	£34.08 (£29)
BRDG	**Bridge** (not the Golden Gate but the card game)	£29.38 (£25)
FLSM	**Microsoft Flight Simulator** (realistic, accurate)	£41.13 (£35)
LEM3	**Lemmings/Oh No! More Lemmings Bundle**	£25.85 (£22)
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WTSCD	**Mr Wonder's Toyshop** (storytelling, music, rhyme)	£29.38 (£25)
RUFF	**Ruff's Bone** (adventures with Ruff the dog)	£28.20 (£24)
HARECD	**Tortoise and the Hare** (the epic race)	£28.20 (£24)

REFERENCE

		inc VAT (ex VAT)
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MAGCD	**Art Gallery** (Microsoft's tour of the National)	£34.08 (£29)
BKSCD	**Book Shelf** (superb, for everyday reference needs)	£45.83 (£39)
CINI	**Cinemania '97** (19000 movie reviews and more)	£28.20 (£24)
DINO	**Dinosaurs** (the "must have" CD of the year)	£29.38 (£25)
NCRT	**Encarta '97** (fantastic multimedia encyclopedia)	£41.03 (£35)
GRLCD	**Groliers Encylopaedia 96** (21 vols, 9 million words!)	£45.83 (£39)
LLVCD	**Le Louvre** (tour the famous Paris Gallery)	£41.03 (£35)
MICD	**Musical Instruments** (Microsoft's excellent entry)	£29.38 (£25)
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OEDCD	**Oxford English Dictionary** (the whole thing)	£264.38 (£225)
REDCD	**Red Shift** (superb astronomy program)	£41.13 (£35)
UHBCD	**Ultimate Human Body** (Dorling Kindersly's one)	£29.38 (£25)

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BK2180	**Macworld Photoshop V3.0 Bible**	£38.99
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QuickTime

It's not just small, grainy movies! In a new series about Apple's groundbreaking media player technology, Jonathan Ferman shows you how to get more out of QuickTime.

Images from an Apple movie introducing the features of QuickTime. You can find it on the Internet at **www.bluewaters.com**.

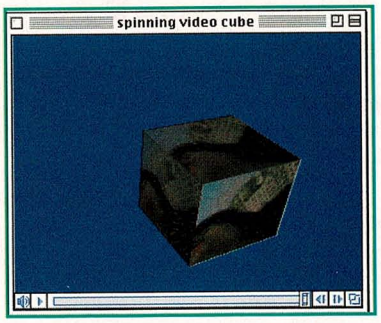
When QuickTime first appeared on the Macintosh back in December 1991, it definitely turned a few heads. Its most impressive feature was the ability to play digital movies directly on your Mac screen. While the movies tended to be quite small and of fairly low quality, developers and users alike loved the idea, and the technology grew rapidly.

Today, as we saw in our cover feature on desktop video in MACFORMAT 45, it has evolved so far that it's made it possible for anyone to create film and TV productions using just an off-the-shelf Mac. Films can be digitised in QuickTime format, edited in a Mac-only environment, and then exported again at full broadcast quality, complete with transitions, sound tracks, and even special effects. You've probably been watching Mac-produced TV programmes and movies for years without realising that it was QuickTime behind it all. And, of course, there's all that video in today's games and multimedia, now up to full-screen size.

In this series, we'll explore how the QuickTime technology works, learn what the latest developments are, and discover the tricks and techniques that will help you get the best out of it on your Mac.

Apple, which produces QuickTime, describes it as "the 'magic' behind multimedia on CD-ROM, broadcast and the Internet". QuickTime sits in your Mac's System folder and gives you the capability to view and edit video, animation, music, text and various other types of information on your Mac.

QuickTime is made up of a number of different components, including System software Extensions, compression facilities, standard file formats and even human interface guidelines. QuickTime's popularity has greatly increased since it became a "multi-platform" technology standard – meaning it is supported on computer systems other than the Mac OS. There are also versions of QuickTime for Windows, and support has recently expanded to the Unix and Silicon Graphics systems, which are often used for high-end graphics and digital video work.



QuickTime can now display 3D tracks – this example shows an object produced with QuickDraw 3D, with a QuickTime movie mapped on top of it.

QuickTime's multi-platform capability and its component architecture mean that developers can create QuickTime content once and distribute it across many different computer platforms without much extra work, thereby increasing the potential audience for their work. Apple seems determined to make QuickTime a dominant technology in the multimedia business. It plans to achieve this goal by supporting many different types of computers and delivery mechanisms, such as the Internet and CD-ROM – and this strategy is working, with QuickTime fast becoming the universally accepted standard.

QuickTime movies, and in particular video, vary greatly in terms of quality, display size and therefore file size. For instance, a QuickTime movie on the Internet is likely to be quite small, often the size of a postage stamp, whereas

QuickTime – the future

Ultimately Apple wishes to make its "Quick" technologies, like QuickTime and QuickDraw 3D, work together. It is calling this concept the QuickTime Media Layer or QTML for short. (See our interview with Apple boss Gil Amelio in MACFORMAT 44.) QTML comprises elements such as QuickTime, QuickTime VR (Virtual Reality) and QuickDraw 3D, and it is designed to provide a richer multimedia environment. Add some of the features of Apple's Game Sprockets as well ("mini-programs" designed to handle various standard functions, like the 3D Sound sprocket) and you get an idea of what might be done. Imagine moving around a QuickTime VR movie and within that movie being able to interact with models created in QuickDraw 3D and having QuickTime movies running on the 3D objects.

QTML looks to have great potential for stunning multimedia titles, and Apple plans to make QTML an industry standard multimedia file format. Expect to see QTML begin to appear sometime in 1997.

HyperCard

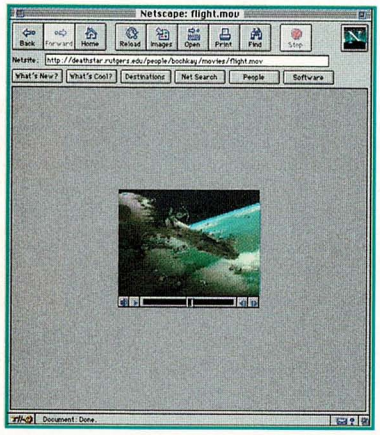
Closely tied to QTML is Apple's *HyperCard*, an application which enables you to make interactive documents. The next major upgrade to *HyperCard*, version 3, due for release in the Summer of 1997, should give the old program a new lease of life. While Apple has not revealed any detailed plans for *HyperCard 3*, what it has said seems very encouraging. The company plans to support the QuickTime Media Layer, add cross-platform playback (enabling it to work in Windows), and provide an easier-to-use interface. Apple wishes to make *HyperCard* interactive documents, known as stacks, work on CD-ROM, on "intranets" (internal networks) and on the Internet. The combination of interactive documents and QuickTime content that work on the Internet should make a big impact on the Mac in 1997.

QuickTime on the Internet

We are likely to see more QuickTime-enhanced pages appearing on the World Wide Web as people's connections to the Internet increase in speed and more people use a faster type of Internet connection such as ISDN. Apple's QuickTime plug-in, a part of *Netscape Navigator 3* and freely available from Apple's QuickTime Web site (**http://www.quicktime.apple.com/**), will also be updated to incorporate more features and support other types of Web browser.

MPEG

Apple has just announced a new QuickTime System Extension that will enable users with



QuickTime movies on the Internet are likely to be small, but not because of any limitation of the QuickTime technology.

QuickTime movies on CD-ROM tend to be larger. This stands to reason, because which medium you are using determines how quickly data is sent to the computer's processor.

Uncompressed video may take up as much as 50 megabytes a second, which is more data than most computers can handle. To try and overcome this problem of data throughput, QuickTime uses plug-in modules called codecs (compressor/decompressors). If you record a high quality QuickTime movie and then compress it with a codec such as Cinepak, for example, you'll end up with a significantly smaller file size and the quality should still be reasonable even when played in a large window – or even full screen, although this is dependent on the speed of your Mac and the size of the movie. There are a wide variety of codecs around, and each is used for different purposes, not just for time-based movies but also for still images.

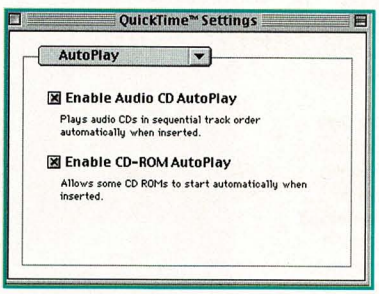
The latest version of QuickTime for the Mac, version 2.5, is Apple's most radical upgrade of QuickTime yet. (If you haven't already installed QuickTime 2.5, it's in the **Resources** folder of this issue's Cover CD.) Many parts of QuickTime have been rewritten, and with QuickTime 2.5 installed, movies should run much more smoothly. This was achieved by updating the way that QuickTime handles data, with speed improvements anywhere between 20% and 200%. More of the components which make up QuickTime are now PowerPC native, again resulting in speed improvements especially on PowerPC-based Macs.

A new dimension

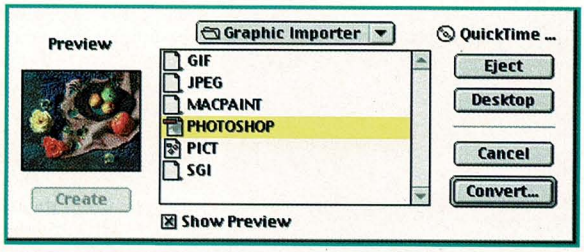
QuickTime now supports QuickDraw 3D, Apple's 3D architecture. Updates to some of the popular 3D modelling and animation packages (see page 40) will enable you to save 3D models and animations as a QuickTime movie.

To deal with QuickDraw 3D, QuickTime creates a separate track, the 3D track. This 3D track has no resolution or frame rate – QuickTime displays the 3D data and interpolates the 3D animation, creating a smooth movement. It can also produce some strange effects – for instance, Apple has shown examples of QuickTime movies where a 3D object is resized on top of a QuickTime video track and continues to play at the new size.

QuickTime 2.5 marks the first major System software element of the Mac OS that includes multi-processor support. This enables you to play several QuickTime movies at once, usually at full speed. Perhaps more importantly, the time-consuming process of compressing a QuickTime movie has now been reduced. Cinepak movie compression on a dual-processor Power Mac is over one and a half times faster than on a single-processor machine, knocking minutes or even hours off compression times.


QuickTime™ Settings
AutoPlay
Enable Audio CD AutoPlay
Plays audio CDs in sequential track order automatically when inserted.
Enable CD-ROM AutoPlay
Allows some CD ROMs to start automatically when inserted.

The new QuickTime Settings Control Panel.



QuickTime's new Graphic Importer functions enable you to open and convert a number of popular graphic file types using any QuickTime-savvy application, even *SimpleText*.

Apple wants to make QuickTime one of the standard tools in the music industry through QuickTime Music Architecture or QTMA. The music architecture now addresses many of the issues that were raised by musicians. Significantly, MIDI files which store musical "events" can now be played in CD-quality (16-bit stereo) sound on Power Macs. Apple has also provided more export options for QuickTime music, such as the ability to save music in CD-quality AIFF files. You can also drag and drop instruments, sound and MIDI clips between MIDI applications such as sequencer programs. Best of all, MIDI files tend to be quite small since they carry music instructions rather than digital sound. To put the MIDI file size in some perspective, you can hold almost two hours of MIDI music on a single floppy disk.

Looking good

After you install QuickTime 2.5 you could be forgiven for wondering what all the fuss is about. Most of the software is installed into your Extensions folder, which is inside the System Folder. If, like most people, you opt for the "Easy ➤

ON THE CD

The latest version of QuickTime is on the Cover CD.

Jonathan who?

Jonathan has recently returned to full-time education after working at Apple UK for over a year. He's trying hard to remember what information he wasn't supposed to reveal, but can't promise he won't let something slip out...

MPEG software decompression will soon mean you can play MPEG movies on your Mac with no extra hardware.

PowerPC-based Macs to play MPEG-1 movies. MPEG is a way of compressing and decompressing movies – and MPEG compresses so much of the information contained in a movie that most feature films can fit on just two CDs. However, currently if you want to watch MPEG movies you have to buy an MPEG card. The new MPEG Extension should enable fast PowerMacs (and clones) to run MPEG movies full screen and at full speed just via QuickTime software. The QuickTime MPEG Extension works by converting all the MPEG information into a single MPEG track, which then enables you to use all the usual editing capabilities provided by QuickTime such as cut, copy and paste.

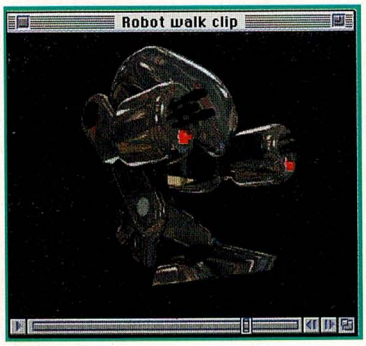
QuickTime on other platforms

Apple also plans to release the non Mac OS versions of QuickTime much faster by making most of the QuickTime software system-independent. The goal is to be able to release the same version of QuickTime on the Windows platform within weeks of releasing the Mac version. Meanwhile, QuickTime 2.5 for Windows, due for release early in 1997, will for the first time allow users of Intel-standard PCs to create and edit QuickTime content. QuickTime will even support Microsoft's movie software effort called ActiveMovie, which should encourage Windows developers to use QuickTime for their multimedia content.

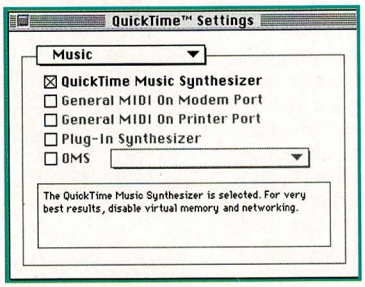
Text tracks

Text tracks have worked in QuickTime since 1992. However, they have been neglected for many years. One of the reasons may be that Windows has not had the ability to play back the text track. This problem is addressed in QuickTime 2.5 for Windows. Text tracks are beginning to see something of a renaissance with QuickTime's new karaoke support, which uses the QuickTime text track.

Perhaps the most impressive feature of text tracks is that they can be keyed to more than one language, along with sound tracks. If the replay tool – say, *MoviePlayer* – knows how to check the System software version and find a matching track, users can get text and narrative in their own choice of language.



Apple plans to integrate its "Quick" technologies, such as QuickTime and QuickDraw 3D, more closely together, creating a richer multimedia experience.


QuickTime™ Settings
Music
QuickTime Music Synthesizer
General MIDI On Modem Port
General MIDI On Printer Port
Plug-In Synthesizer
OMS
The QuickTime Music Synthesizer is selected. For very best results, disable virtual memory and networking.

The **QuickTime Settings** Control Panel – new with QuickTime 2.5 – has some handy options for connecting to music keyboards or using music software.

Install", there are only two QuickTime utilities that you will encounter in day to day use. The first is a new Control Panel called **QuickTime Settings**. This offers you the option of some useful CD features, namely the ability to automatically play audio CDs when you insert them in your CD-ROM drive and the automatic playback of CD-ROMs that have taken advantage of the AutoPlay feature. From the pull-down menu you are also presented with various music options, which enable you to easily connect to external music keyboards or use special music software with QuickTime.

Second, thanks to QuickTime's new Graphic Importer, you can now open and convert some of the most widely used types of graphics files using the supported codecs and a QuickTime-compatible application – all that is required is the new QuickTime Extension. If you use *Adobe Photoshop* you will probably find this particularly useful as you can now distribute *Photoshop* files to anyone with a Mac and QuickTime 2.5 installed, safe in the knowledge that the only other thing necessary to view the *Photoshop* file is any QuickTime-savvy application such as *SimpleText*. Previously if you wanted to let other users view a *Photoshop* file they would have needed *Photoshop* on their machine, or a specialised graphics viewer application. What's more, QuickTime also enables *Photoshop* users to preview graphics files in the **Open** dialogue box.

A third noticeable feature installed by QuickTime is found in the **QuickTime Folder**. This folder contains Apple's *MoviePlayer* application, which enables you to view and edit QuickTime material such as video. We'll be looking at the music support provided by QuickTime and the features of *MoviePlayer* in future issues of MACFORMAT, culminating in a feature on how you can use QuickTime on the Internet.

QuickTime has now matured to a stage where it is the de facto standard in multimedia. While competition is heating up for serious alternatives to QuickTime, QuickTime still has more features and better performance when compared with rival systems such as ActiveMovie from Microsoft. Apple commentators have identified QuickTime as the single most important Apple technology that has to be integrated into any forthcoming NeXT/Mac operating system (see News, page 18). Meanwhile, more and more QuickTime tools and QuickTime-compliant applications are coming out every month, and that can only be good news for everyone.

Next issue, we'll take an in-depth look at Apple's *MoviePlayer* to show you some of its best features and how you can use them. **MF**

Yes, okay, the support for text tracks in QuickTime means real interactive karaoke. Well, Apple had to do *something* to sell more Macs in Japan...

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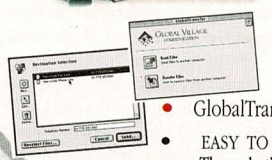

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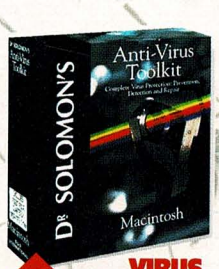

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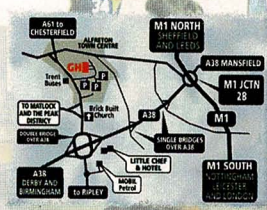

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The ultimate find

If you think you know how to use the Find function in *FileMaker Pro 3* to the full, then Derek Smith has news for you. This issue, discover how to narrow a search to precisely what you want...

ON THE CD

Sample database and usable *FileMaker Pro 3* demo

Last issue we went through the basics of how to use the Find function in *FileMaker Pro 3*. It may be that for some people, that's all they'll ever need to know. But if you're like me, and enjoy pushing *FileMaker* to the limits to create the best database possible, then read on to find out more.

In order to do anything particularly clever in *FileMaker Pro 3*, you'll have to turn to scripts sooner or later. If scripts have always daunted you, then they shouldn't – they're really not as hard to master as you think. What follows is not a tutorial on scripting (although I'm sure these will follow in later issues), but a couple of example scripts which solve two specific "Find" problems.

So on to the first problem scenario. With some fields in a database you will not want users accidentally changing the information. For instance, in a personnel database you may want people to have the ability to see salaries, but not to change them. You can do this by unchecking the **Allow entry into field** box in the **Field Format** dialogue.

The problem is that this not only locks the field while in Browse mode, but also when in Find mode. So, for instance, you would be unable to perform a find of those people earning more than £10,000. This is, of course, completely illogical since you cannot edit data in Find mode, and therefore cannot cause harm.

Never mind, let's find a way around it. One possible solution is to duplicate the layout, and allow entry into all fields on this duplicate. Then create a button on the original which takes you to the duplicate version, switches the user to Find mode, performs the find, then switches them back to the locked layout.

You can stop inquisitive users accessing this duplicate layout by unchecking the **Include in layouts menu** box on the **Layout Setup.** This, however, is very clumsy, and would require a lot of maintenance on your part.

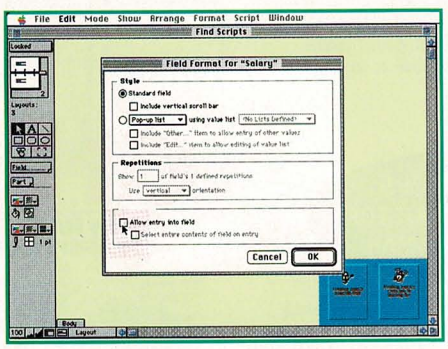
A better solution comes from understanding what effect the **Allow entry into field** box really has. Essentially, all it does is stop you from tabbing or clicking into a field, not from editing the data. Well, if you can't tab or click into the field, you can use the **Go to Field** script command. That gets you into the field ready to type, but you only want this to be possible if you're in Find mode, not Browse. Here's how you do it.

Security

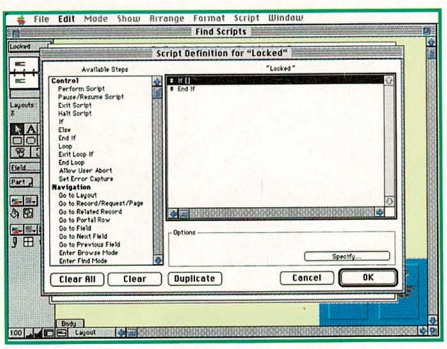
Using the **Allow entry into field** option is useful for stopping people accidentally editing data, but for proper security, use **Access Privileges.**

We need you

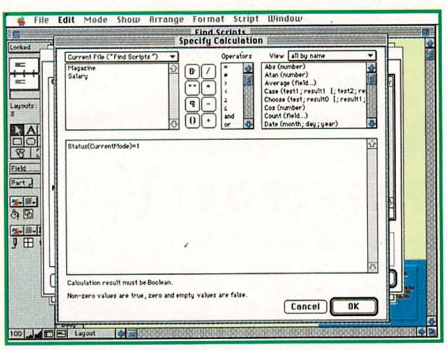
What subjects would you like us to cover in our *FileMaker Pro 3* series? Or do you have some tips you'd like to share? Write to "FileMaker Pro's", MacFormat, 30 Monmouth Street, Bath BA1 2BW or e-mail us at macformat@futurenet.co.uk



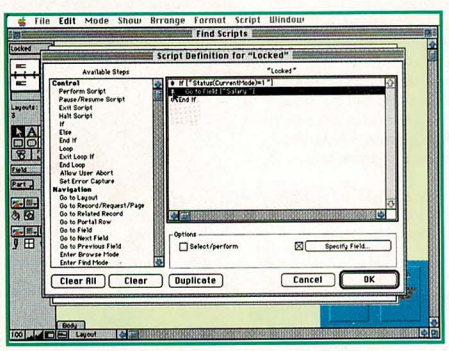
1 Enter Layout mode and click the field you want to lock. Choose **Field Format** from the **Format** menu and uncheck the **Allow entry into field** box.



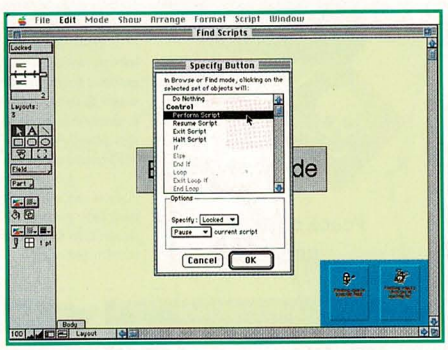
2 Choose **ScriptMaker** from the **Script** menu. Type in a name for your script and click **Create.** Click the **Clear All** button to remove the annoying default script that always appears.



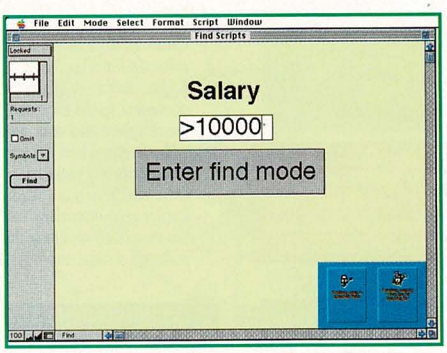
3 From the commands down the left side, double-click on **If** to make it appear in your script. Click the **Specify** button and type Status(CurrentMode)=1. **0** represents the Browse mode, **1** is Find and **2** is Preview.



4 Double-click the **Go To Field** command, then click **Specify Field** and choose your locked field. Use the arrows to move this line just above the "End If".



5 Still in Layout mode, click the locked field and select **Button** from the **Format** menu. Select **Perform Script,** then choose your script from the pop-up menu at the bottom.



6 Now, when you click on the field in Browse mode, nothing will happen. Click on the field in Find mode and the cursor appears in the field, enabling you to type a Find request.

The example opposite required a simple three-line script. Now we look at a much more complex problem that requires a more complex script. Let's say you have a database of magazines and newspapers, including the titles *Time, Time Out, Times* and *Fight Time.* You want to find the magazine *Time,* but none of the others. This not only saves time, but it might be crucial within a larger script that will automatically do something to the records that it finds. So how do you go about it?

If you merely did a normal find on the word "Time", it would pull up all four records. By typing =Time you would eliminate "Times", but not the other two – thus still leaving you with items you do not want to find. It may seem incredible, but there is no automatic function in *FileMaker Pro 3* that enables you to carry out precisely this task.

The solution then is to find =Time, then omit any records that have a space either before or after the word. To do this manually is relatively simple. Enter Find mode and type =Time, select **New Request** and type " Time", then click the **Omit** box. The quotes are necessary for *FileMaker Pro* to recognise the presence of the space before "Time". Lastly, generate a third request and type "Time ", click the **Omit** box, then perform the Find.

Often, you'll want this as part of a script, and this is the fiddly bit, because to recreate the entire Find request involves lots of cutting and pasting. However, although it's a long script, there's nothing particularly difficult about it.

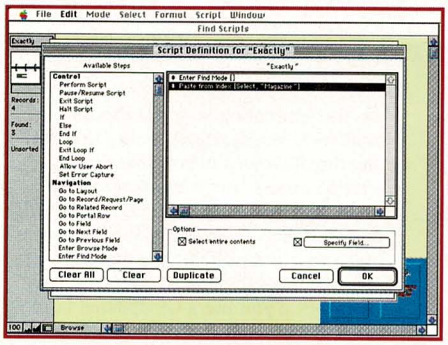
Interestingly, it's impossible to script this in *FileMaker Pro 2* because there's no way to select the **Omit** box on a find request. This has finally been made possible in version 3, although you may not have realised this because the **Omit** command is very strange. It must be unique in *FileMaker Pro* in that it does two totally different functions depending on where in the script it is used.

If used when the script is in Browse mode it has the same effect as choosing **Omit** from the **Select** menu: that is, it deselects the current record from the found set. If used when in Find mode it has the same effect as clicking the **Omit** box in the tool panel – two completely different functions!

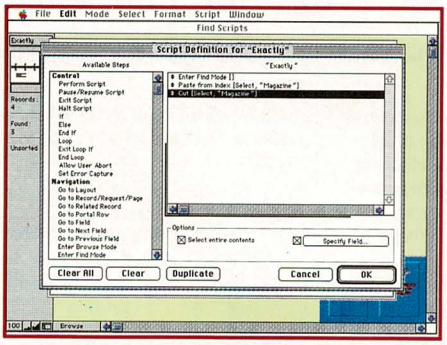
Let's take a step-by-step look at how you would construct the script.

Spaced out

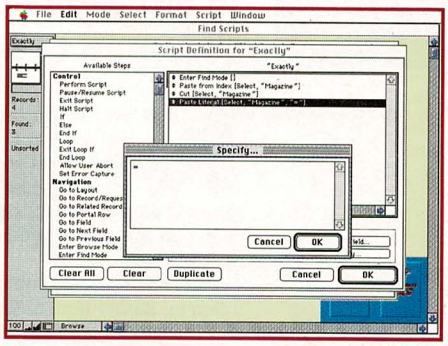
In this second example, you cannot use the @ symbol (which represents any single wildcard) instead of a space. This is because *FileMaker Pro* does not consider a space to be a character.



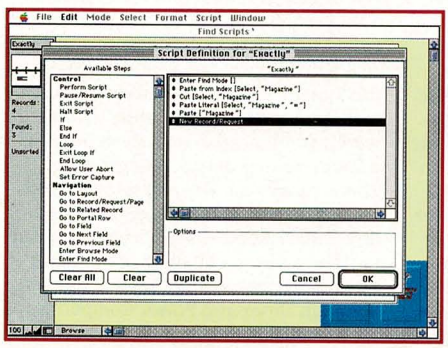
1 Once you have created and cleared a new script, start by entering Find mode. Use the wonderful **Paste from Index** command, which will enable you to select your Find word from a menu.



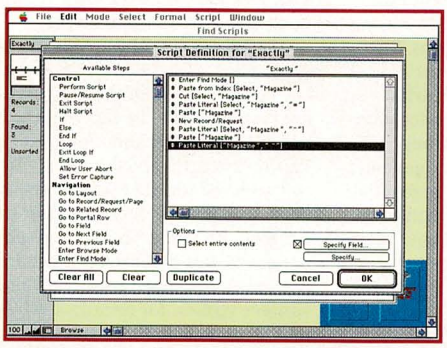
2 You now have to cut the selected Find word because we need to place an [=] in front of it. This is in order to eliminate words that have the find word in the middle of them.



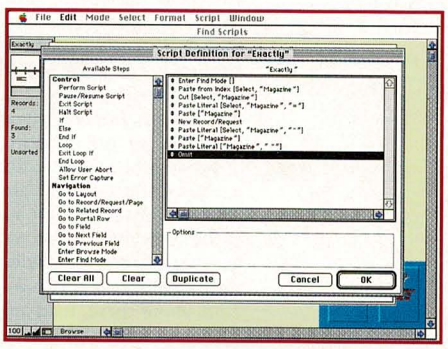
3 In order to paste the [=] it's best to use the **Paste Literal** command. You can use this a lot in this script because it enables spaces and symbols to be pasted.



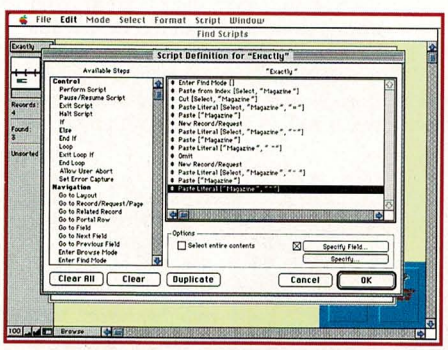
4 You can now paste the Find word back in. Be sure to uncheck the **Select entire contents** box, otherwise it will paste over the [=]! Now select **New Request.**



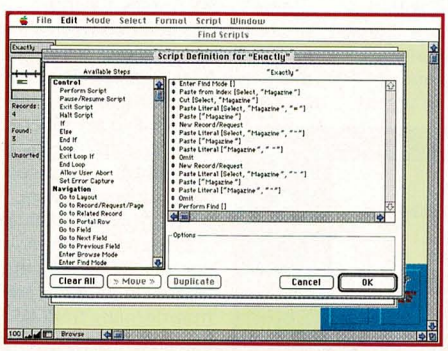
4 To create the next Find request, you need to Paste Literal a ['] and a [space]. Then paste the Find word, followed by another ['].



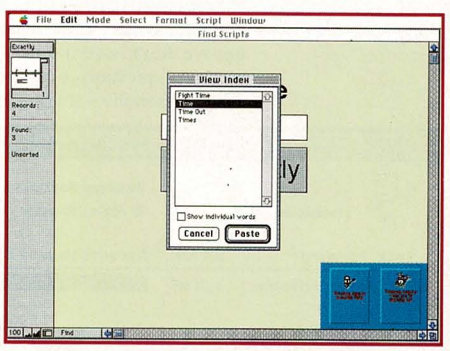
6 This last request is what you *don't* want to find, so select the **Omit** command. This has the effect of ticking the **Omit** box in the tool panel. Now you're ready to create your last request.



7 This one is very similar to the previous request, but you need to paste a ['], followed by the Find word, followed by a [space] and then another ['].



8 Omit this request again, and you're ready to perform the Find automatically. Remember to uncheck the **Restore find requests** box.



9 In our sample database on the Cover CD, this means that when you perform a Find on the word "Time", you won't pick up *Time Out* or *Fight Time,* as you normally would. Job done!

Got a problem with your Mac? You're not alone. Help is at hand in our guide to the ("official") ten most common Mac problems. The men in lab coats are Lindsay Bruce and Derek Smith...

Now that the festive season is well and truly done and dusted and you've cleaned the errant bits of Christmas cake out of your Mac, it's a time to reflect on life and ask yourself "Why is my Mac crashing?"

This issue's Mac Answers is a little bit different. Rather than tackling readers' real-life queries as usual, we thought we'd try to address the most common problems, the difficulties most people seem to be having. To find out what they were, we sent e-mails around the world and consulted Apple's own Assistance Centre to compile the official Top Ten Most Frequently Asked Questions. The answers are all here. So, ask your Mac this: is it feeling lucky? Ask not what you can do for it, but what it can do for you. And read my lips: no more crashes.

We've posed the questions as general queries so they don't relate to individual products, but simply the subject matter in the broadest possible way. Many of the questions concern the latest System software versions, so if you want to know more about these, read on!

Do you have a problem not covered here? Then use the form on page 56 to write to us at MacAnswers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW, fax us on 01225 446019, or e-mail us at **macformat@futurenet.co.uk** with the word "answers" in the subject line. Sorry, but we don't have the staff to answer technical questions over the phone or reply personally – if you have an urgent problem with a new Mac, try the Apple Assitance Centre on 01753 615999.

God bless System 7.5

US System updates

Q *Should I use American System software updates?*

A In a word, no. If you have a UK version of the Mac OS on your machine (whether you bought it yourself or it came installed), you should never use a US updater to change it to a newer version.

The US version of the Mac operating system has subtle differences from the UK version. Some of the most noticeable are cosmetic, like the fact that the latter has a Wastebasket and the former has the Trash. (Interestingly, the name "Trash" is still reserved for the System's use in UK versions – just try giving a folder on your Desktop the name "Trash" and see what happens.) But other differences are important (there may be different reserved variable names, for instance), to the extent that some software makers strongly recommend that if you use a UK version of their software you stick to the corresponding System version. US updaters won't take account of these variations.

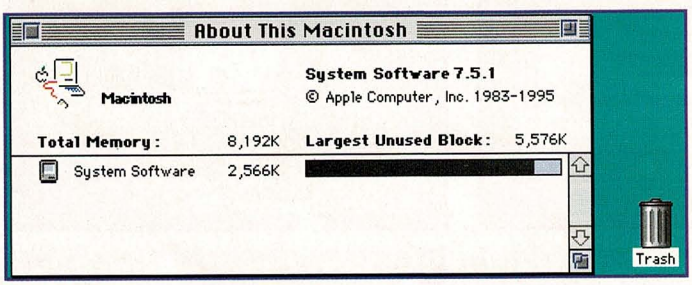
What's more, some Extensions and Control Panels differ between US and foreign System versions. If you use a US updater, it might not update all the necessary Extensions and Control Panels in your System folder, so you could end up running both UK and US software components on your System. This makes for an unstable Mac.

There's another consideration too. Because of the lengthy localisation process (transforming from US to foreign versions), US System software updates are released well before the UK versions (although Apple has made a commitment to change this) – so, the temptation to go for the US updates is strong. However, quite often the time involved means that the UK version already includes some updated code, and running a US updater may add spurious bits of irrelevant code or, worse still, completely disable the existing bug fixes. The bottom line is: your Mac will still work if you use a US updater, but it won't be as stable.

Of course, it's fine to use a US updater if you have a US version of the OS, such as you get with Mac clones from Power Computing, Umax, and DayStar. But in any case, you should pick either a UK or a US version of the System and then stick to it – don't chop and change.

If you decide to get a UK version of the System for your Mac clone (which makes sense as you'll be using UK software), you'll need to do a clean install of a UK version of the operating system. This is easier said than done – where do you get a completely new set of System disks from? Apple doesn't hand these out to clone owners, and none of the clone manufacturers has provision for this yet, although Umax and Power Computing are looking into it.

The answer is to wait until Feburary, when System 7.6 is out in the UK. You will have to buy this, but it will enable you to install a fresh 100% UK version of the System. As yet, there is no word on pricing from Apple, but it is expected to be between £60 and £120, depending on which System version you are upgrading from. New Mac buyers from March onwards will get System 7.6 with their Mac.



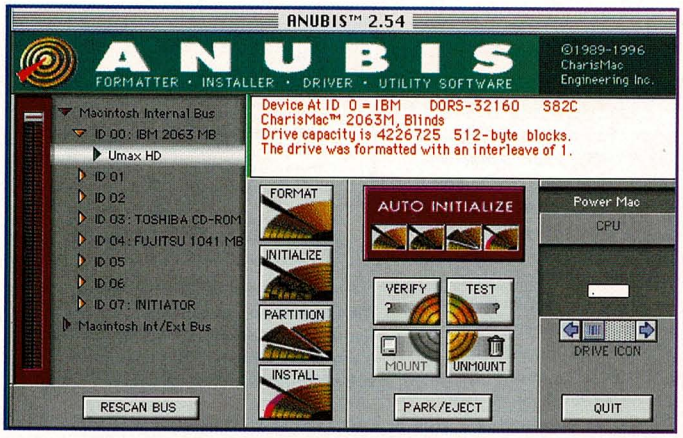
US System updates not only change your Wastebasket to Trash, but swap the date format around and don't correctly update some parts of your UK System.

Old and new

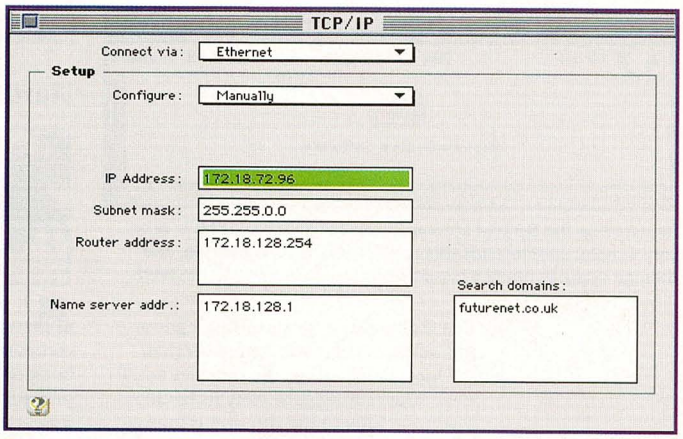
Old peripherals and new software

Q *Can I use all my old SCSI peripherals (hard drives, scanners etc.) with newer versions of System software?*

A Yes, generally speaking you can, and unless you are using a very old



Before installing System 7.5.3 or later (the current UK version is 7.5.5), you must update your hard disk with a SCSI Manager 4.3 compliant driver, either by using *Apple HD Setup* or a utility such as CharisMac's *Anubis* (above).



In order to get your Mac on-line, you need a modem, an Internet service provider, and the TCP/IP Control Panel. You'll have to configure your IP address in here. Your service provider will be able to help you with this.

drive (pre-1986), you won't even have to reformat it – but you will have to update the driver software.

PowerMacs have always had potential problems using older 680x0 driver software, but whatever Mac you have, System 7.5 treats SCSI (Small Computer Systems Interface) devices slightly differently than previous versions of the operating system. System 7.5.3 and above bring in yet more changes, and it's all largely to do with SCSI Manager 4.3.

This is the part of your Mac's OS that coordinates data transfer through the SCSI bus and communicates with each device's software driver. When you start to use System 7.5.3 and above, you *must* update the software driver for all SCSI devices connected to your Mac. If you don't do this, your Mac will work fine most of the time, but you will get frequent unexplained crashes, and errors creeping into your data on the hard disk. This is common in programs that use large scratch files on your hard disk for temporary storage, such as *Adobe Photoshop*. The reason is simply that some older SCSI device drivers are not SCSI Manager 4.3 compliant.

Apple HD Setup, supplied with all System updates, is provided so you can update the driver for your hard disk before installing the new System software. If you are using a third-party driver on any of your disks, like FWB *Hard Disk Toolkit*, you should contact the manufacturer for an update. At present, the latest versions of Software Architects' *FormatterFive* (£165 from Softline, 0181 401 1234), FWB's *Personal Hard Disk Toolkit* (£63, also from Softline) and CharisMac's *Anubis 2.5.4* (£69 from Tyrell, 0171 287 1815) are all SCSI Manager 4.3 compliant.

Information B-road

Connecting to the Internet

Q *What do I need to connect my Mac to the Internet, and how do I set it up?*

A If you fancy some cyber surfing, you really need only four things in addition to your Mac. First is a modem. If your Mac doesn't have one already fitted, you'll need to buy one, then plug one lead into the modem port in the back of your Mac and the other end into the phone socket. The second thing you need is a working phone line (the socket will be pretty useless without one). Next, you need an Internet service provider (ISP), and ISPs usually provide the fourth thing, some software.

The ISP is a bit like your telephone company – it simply provides the connection through which you access what you really want to access. (In this case, it provides a "server" computer networked to the Internet, usually with some added services like e-mail thrown in,) It's crucial to find a Mac-savvy provider. This is because first, you'll need Mac compatible software, and second, you'll need a Mac compatible human on their telephone helpline!

The software supplied will vary between providers, but you'll need several crucial items. First, your Mac needs to be able to talk the language of the Internet, which is called TCP/IP (Transmission Control Protocol/Internet Protocol). This is a very efficient language that can survive the vagaries of such a huge network such as the Internet.

Previously on the Mac, this was provided via a Control Panel called **MacTCP**. If you have a PCI PowerMac (any model that uses the PCI expansion standard – see the table on page 124), or you are using System 7.5.3 or newer on any model Mac, then you need Open Transport, Apple's latest networking software, which has superseded MacTCP. (If you don't have a PCI Mac and use System 7.5.1 or earlier, stick to MacTCP.)

Although it does a lot else besides, Open Transport gives you a Control Panel called **TCP/IP** which enables your Mac to talk the Internet language. Whether you use MacTCP or TCP/IP, there are a variety of settings that need configuring, but your Internet provider will give you all that information. You may also be given a piece of PPP (Point to Point Protocol) software. This simply connects you to the provider when you

The do-it-yourself problem-solving guide...

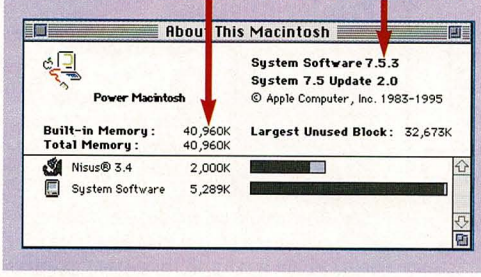
It's great being able to add System Extensions to add exactly the functions you need, or find new Control Panels to customise your Mac. But some may be written by inexperienced shareware authors, or bend Apple's programming rules, or just conflict with others, causing crashes, freezes or start-up problems. One of the most common causes of problems on your Mac is Extensions or Control Panels clashing in your System Folder.

It's easy to check if this is the case. Restart your Mac and hold down the [shift] key as it starts up. Release the key when you get the message, "Welcome to Macintosh. Extensions off." If everything now works, then the problem is likely to be an Extensions conflict.

The only way to work out which item is the culprit is by trial and error. Remove a few Extensions or Control Panels, then restart your Mac, without holding down [shift]. Keep on doing this until the problem no longer occurs and you've found the offending software.

If this doesn't work, try rebuilding your Desktop (the invisible data file that keeps track of everything on your machine). To do this, start up your Mac holding down [command] and [option]. You'll get a message asking if you want to rebuild the Desktop. Click OK, wait for it to finish and see if this solves your problem.

If you're still stuck, use the form on page 56 to write to us. We'll need to know a few facts about your Mac, so when you're in the Finder, select About This Macintosh from the Apple Menu – the crucial things to note are shown at left.



Reinstalling the System software installer on a Performa is now very simple: double-click this application, click Continue, and then go make yourself a cuppa while the Mac does all the work.

first dial them. It needs setting up too, but your provider will help with that.

Once connected to the Internet you'll need some software to view its contents. The main bulk of the Internet is known as the World Wide Web, and it's viewed using a browser program such as *Netscape Navigator* or Microsoft's *Internet Explorer*. Providers usually supply one of these, and you can download the other, if you decide you want it, once you're connected. (To help you get started, the latest version of *Internet Explorer* was yours, complete, on last issue's MACFORMAT Cover CD as well. And for a taste of what the Net has to offer, see MACFORMAT 39. If you missed it, turn to page 144.)

Other important services on the Internet include e-mail, whereby you can send a text message to anyone else on the Internet. You can even attach small files to e-mails, enabling you to send them around the world. A better way to send and receive larger files is via FTP (File Transfer Protocol). Many sites such as Apple's will have files and updates that are freely downloadable via FTP.

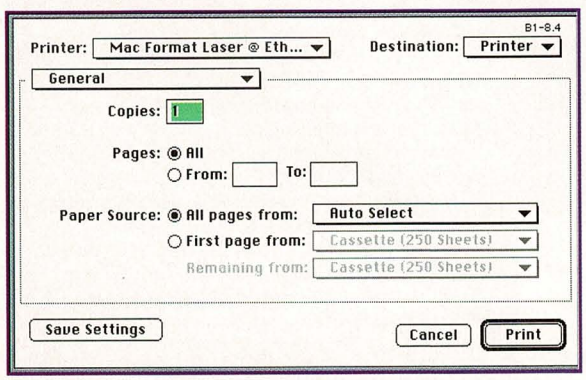
Most files are compressed to make them smaller and therefore cheaper to download. In order to expand them, you'll also need an expander program such as *StuffitExpander* and *DropStuff*.

Lastly, there are newsgroups, a sort of communal e-mail world where you can converse in discussion groups about any subject you can possibly imagine. Luckily, most Web browsers can perform all of these functions, although for serious use you will want specialised software such as *Eudora*, *Fetch* and *NewsWatcher*. Again, most of this is absolutely free and can be downloaded once you are on-line; some of it is included in the **Resources** folder on our Cover CD.

Then, once you get a taste for all this, all you need is enough money to keep paying the phone bills!

Up-to-date

Note that if you have used an updater to update your System but want to reinstall it, you should first do a "clean install" of the original version (whether you bought it or got it with your Mac), and *then* run the updater on it again. Custom installs are not a good idea – you can end up with incompatible versions of Extensions etc.



The most recent LaserWriter driver (version 8.4.2) has moved many of the options into pop-up menus. It's much easier to use and kinder on your hands.

Starting over

Reinstalling the System

Q *I have a problem with the System Folder on my Mac. How do I reinstall the System software?*

A If you've bought a Mac in the last two years, the System software comes on a CD with the machine. If you bought your Mac prior to this, you probably got it on a set of floppy disks – unless it's a Performa, in which case you probably don't have any System disks. Until fairly recently, Apple had a bizarre policy of not including System disks with Performas, the rationale being that novice users would find it too confusing. Instead, these "novices" were expected to back up the contents of the hard drive before they used it! If you're one of this fortunate band, then unless you made a back-up of your System yourself, you need to try and beg a set of System disks off a friend or your local Apple dealer.

Reinstalling the System is easy. On Macs that came with floppy disks, it's simply a case of inserting the installer floppy, double-clicking on the installer, clicking **OK** a couple of times, and then just feeding the Mac the rest of the floppies as it asks for them. It's even easier with a CD as you don't have to insert any disks – everything is on the CD.

If you're a power user, though, here's a couple of handy hints:

1. If you know which particular bits of your System you want to reinstall, the Apple installer gives you a **Custom Install** option which lets you define what gets installed – handy if you've just lost a single Control Panel.

2. In "reference releases" of the System (full versions, not updates), there's a hidden feature called a "clean install". To use this, launch the installer, then at its main screen don't choose custom *or* standard install, but press **[command] [shift] K** instead. Rather than updating your existing System Folder, this creates a completely new System Folder, leaving the old one untouched. This is particularly handy if you're having problems updating the old System because it's damaged.

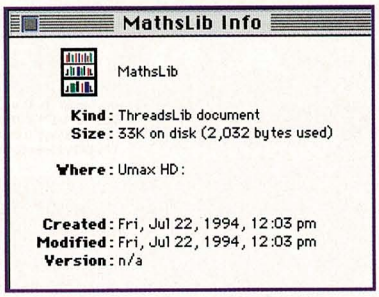
If you've got a CD with your Performa, then you are a special case, as you have your own no-fuss installer which simply restores the entire System – whether you want it all or not.

Printer dilemma

Using old printers

Q *I recently bought a PowerMac, and I want to use my old printer with it, but I can't get it to work. Why?*

A Non-Apple printers are not directly supported by the Mac's printing system, which is why all third-party printers


MathsLib Info
MathsLib
Kind: ThreadsLib document
Size: 33K on disk (2,032 bytes used)
Where: Umax HD:
Created: Fri, Jul 22, 1994, 12:03 pm
Modified: Fri, Jul 22, 1994, 12:03 pm
Version: n/a

MathsLib is an essential part of your System if you own a PowerMac. It handles a whopping chunk of the millions of maths calculations that programs make daily.

come either with their own driver software or a printer description file which tells the Mac how to communicate with the printer. If the driver software for your printer was designed to run on an older 68K-based Mac under, say, System 6.0, it may not work on a PowerMac running System 7.5. This is partly down to the fact that PowerMacs don't run 68K software (especially driver software, which runs in the background) particularly well, because it has to run under 68K emulation and not as PowerMac native code. But secondly, System 6.0 drivers might not work properly under System 7.5 because the printing system has since been completely revamped.

If the printer is a laser, you should be able to use Apple's own LaserWriter 8 driver. LaserWriter 8 is designed to work specifically with PostScript laser printers. LaserWriter 8 will drive any laser printer that uses the PostScript language, although you won't be able to access any printer-specific features such as image enhancement or colour calibration. The current version of LaserWriter is 8.4.1, and it is available for download from the Internet at **ftp://euro.apple.com/**

Failing that, if the printer isn't a laser for instance, your only recourse is to try and get an updated driver for the printer from the manufacturer, or use a driver for a known compatible printer. If it's a very old printer, the chances are that new drivers are no longer being developed for it – in which case you're stuck and may have to buy a new printer.

System up&@te$

Bug fixes and updates

Q *I've installed System 7.5.5, but now some of my programs are crashing more than ever! What's happening?*

A If you've eliminated all the usual suspects (Extensions conflicts, corrupted application software, hardware faults, etc etc), then Apple says the most likely cause is an Extension called MathsLib, which many programs use. Changes to this Extension were the biggest single change in System 7.5.5 (the rest being mainly bug-fixes). MathsLib stores bits of code that applications use to access your Mac's built-in number-crunching routines. All you need to do is increase each

application's memory requirement in the **Get Info** box in the Finder by 23K. For example, if an application's memory allocation is 2,000K, increase it to 2,023K.

It's that easy – unless, that is, you have a PowerMac 4400 or Umax StarMax machine: System 7.5.5 unfortunately doesn't support those models, and they just need any other System version.

The Mac in SCSI chains

SCSI devices

Q *I recently added an external hard drive to my Mac, and now it often doesn't start up. What should I do?*

A SCSI (Small Computer Systems Interface) devices can be a real pain when they don't work. The first thing you should do is make sure that the device (whether it's a scanner or a storage device of some description) has a unique SCSI ID number.

All external SCSI devices enable you to change their SCSI ID number via a selector switch on the back, and most let you select any number between 1 and 6. The Mac can support a maximum of eight devices on a SCSI chain, identified by numbers 0 through to 7. The internal hard drive uses ID 0, and the SCSI controller on the Mac motherboard itself uses ID 7. This leaves IDs 1 to 6 free for external devices like scanners and hard drives. If your Mac has a built-in CD-ROM drive (which is all Macs made in the last two years), this will take up SCSI ID 3. Check that no devices on the SCSI chain have a duplicate ID number.

Things are a bit different with some Performas – the 630, 5200, 5300, 5400, 6200, 6300, and 6400 series – which have IDE (Integrated Drive Electronics) internal hard drives instead of SCSI. These use a separate bus, leaving SCSI ID 0 free, so you can use this for an external device. Just to complicate things further, some PowerMacs (the 8100, 7500, 7600, 8500 and 9500) have a dual SCSI bus. This means they have one bus for internal drives, and a separate bus for external devices. The same rule as before applies to the internal bus – SCSI ID 0 is used by the internal drive, ID 3 is used by the internal CD-ROM drive, and ID 7 is used by the bus controller. On the external bus, only ID 7 is used – by the controller. This means you can connect up to seven external devices and five internal drives. The ID numbers must be unique to devices within their own chain, but you can have two devices at the same ID, so long as they're on different buses. (Oddly enough, though, none of these Macs actually have space for five drives internally – even the 9500 only has two spare drive bays.)

The next thing you should check is that all the SCSI connections are secure and that the SCSI chain is properly terminated. A terminator is basically a resistor block that prevents data bouncing back along the chain when it reaches the last device. This would confuse your Mac, possibly crashing it or preventing it from starting up. A SCSI chain has to be terminated at both ends. The Mac is terminated internally, so you don't need to worry about this. Most drives come with a terminator block that plugs into one of the SCSI connections on the back of the drive, whereas some drives use active termination, or are terminated internally. Check your device's manual to find out which method yours uses.

If your drive did not come with a terminator, you may need to get one. They can be bought from most Mac sellers for about £5–£10. Sometimes, problems with double termination can occur – where a device is terminated internally *and* with an external terminator block. In this case, remove the external terminator.

It's also worth checking your SCSI cables: they shouldn't be more than 50cm long and you should ensure that the connectors are nice and firm. Sometimes the wires inside the cable can get broken or loose, preventing data reaching your Mac intact. Replacement cables can be bought from most Mac resellers and cost around £15–20.

Lastly, you should make sure the driver software for the SCSI device is the latest version. If you have an external hard drive, you can use *Apple HD Setup* (which came with your Mac) to update the driver. For other devices, contact your supplier or the manufacturer for the latest version of the software.

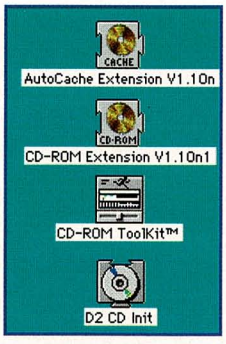
Open Trainspotting

Ethernet networks

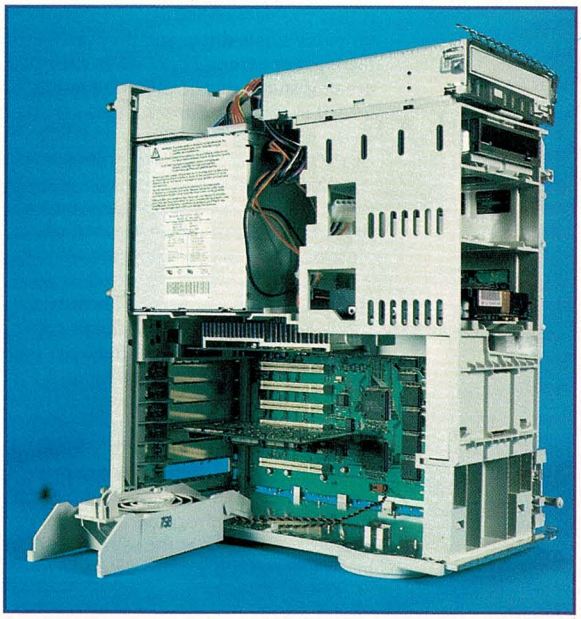
Q *We recently upgraded the Macs on our network to System 7.5.3 and now copying files across Ethernet is much slower. Is this to do with Open Transport?*

A Yes and no. Open Transport makes it easier for you to connect your Mac to a network that includes PCs and Unix-based servers, and it has a number of advantages over older networking software. It's much faster and more compatible with other computers, and gives you more feedback about what's going on. If your network connection goes down, for example, Open Transport will warn you. It will also advise you as soon as it comes back up again.

Your problem is probably more to do with your Ethernet transceivers – adaptors that connect the Macs to the Ethernet backbone. Most Macs (with the exception of Performas) made in the last three years come with an Ethernet port built-in. To connect this to an Ethernet network, you need a transceiver – a little box that manages the flow of information to and from that Mac and translates data into a form suitable for moving round an Ethernet network. Open Transport has a problem with some older non-Apple transceivers that don't fully conform to Apple specifications. For some bizarre reason, this slows down not only the Mac the transceiver serves, but the whole network. Old Apple transceivers seem to work okay, and any new transceivers will work. You should find that if you swap out all older non-Apple Ethernet transceivers the problem will vanish.



If you have multiple external drives of a similar type (such as several CD-ROM drives) connected to your Mac, make sure that you only have one driver for all of them installed in your System Folder.



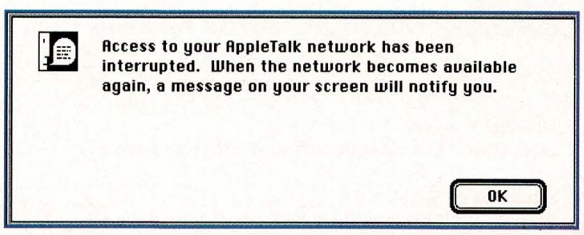
The PowerMac 9500 is one of the few Macs to have separate internal and external SCSI buses, so you can connect twice as many devices to it.

Backseat drivers

SCSI driver software

Q *I have several external removable drives connected to my Mac. I recently updated the driver software for all of them, but now the Mac crashes all the time and I keep losing files. I've checked all the SCSI ID numbers, cables, and termination and all seem fine. Help!*

A This problem stems not from the SCSI bus or the drives, but the driver software. What's probably happened


Access to your AppleTalk network has been interrupted. When the network becomes available again, a message on your screen will notify you.
OK

Open Transport (part of System 7.5.3 and above) simplifies networking between Macs and other platforms. It also notifies you of when your network connection has died - but it may not be compatible with some older Ethernet transceivers.

is that you've installed driver software for every single drive, and they are conflicting. For external hard disks, the driver is stored on the disk itself and is loaded at start-up. For removable drives (including Zip, Jaz, SyQuest, and even CD-ROM drives), the driver software is installed in the System Folder on your internal hard drive (otherwise you would have to install a driver on every single piece of removable media you use).

There is a drawback, however. If you have more than one removable drive connected to your Mac, the driver software installed in your System Folder will try to drive all of them. For example, say you have two optical drives connected to your Mac – a 240Mb drive and a 1.3Gb drive. Chances are, you got driver software with both of them, and you probably installed both versions. This means both these driver programs are trying to operate both drives at the same time. The inevitable result is garbled data and lots of crashes. To solve the problem, remove one of the drivers, preferably the older one. Try using just one driver for all your devices and see if this fixes matters.

P is for Performa

Performa System version

Q *I noticed that my Mac – a Performa – uses a slightly different version of the operating system. Should I use the new System 7.5.5 updates on my Performa?*

Performas (such as this 5400) come with a slightly different version of the operating system from that used with PowerMacs - mainly in that Performas come with At Ease - but you can still use standard System updates.

A Performas do indeed come with a slightly different version of the System software, mainly in that it includes **At Ease,** Apple's simplified version of the **Finder.** These different System versions are usually denoted by a "P" at the end of the System version. You can check yours by making sure to start with that you're using the Finder, then opening the System Folder, highlighting the System file, and then choosing **Get Info** from the **File** menu. The System version is shown at the bottom of the **Get Info** window.

There's no reason why you can't use Mac and PowerMac System updates on your Performa – it is, after all, the same software, but with a few extra components. Just ensure that it's a UK version.

Before you do update your System, however, make sure you have a back-up of your existing System Folder. The best way to do this is to copy it to an external drive such as a SyQuest or Zip, or an external hard disk, but if you don't have one of these, then floppy disks will do.

How many floppies you need depends on how much software you have installed in your System Folder. Typical sizes vary from 20Mb to 100Mb, so you might want to start throwing out all those shareware game preferences now! A compression program, such as *Stuffit Lite* or *CompactPro,* can help you reduce the amount of space that files take up – and they enable you to split the archive over several floppies. You may never need the back-up, but play safe! **MF**

Mac Answers

If you send in a question for the MACFORMAT experts to solve, please fill in and include this form (or a copy of it). And please make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you. Send your form and question to: MacAnswers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW; or fax it to us on 01225 446019.

Name .....

Address .....

.....

.....

.....

.....

Your Mac
(For example, Performa 475, 7600/120, PowerBook 5300):

.....

System version
(see **About This Macintosh** screenshot on page 63): .....

Amount of RAM
(see **About This Macintosh** screenshot on page 63): .....

Are you using Virtual Memory? ..... **YES/NO**
(This is accessed from the Memory Control Panel under System 7)

Do you have 32-bit addressing or Modern Memory Manager (PowerMacs only) turned on? ..... **YES/NO**
(This is accessed from the Memory Control Panel under System 7)

Details of any relevant hardware which could help us to answer your question:

.....

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Now, use this space to describe your problem or question. Please include as much relevant information as possible, and continue on a separate sheet if necessary.

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Power tips!

Your Mac gives you lots of extras – but it's not always clear how to get the best from them. Here are some tips from MACFORMAT readers on using the Launcher.

Our cover feature in MACFORMAT 44 brought you 75 tips on how to get more from your Mac. We looked at how to set up Control Panels to suit the way you want to work, how to get the best from the most common program on the Mac, the Finder, and much more. And we invited you to send us your "power tips". Here's a couple of readers' pointers to how to get the best from the often-overlooked Launcher. (Well, we often overlooked it. But it can be quite handy, as these tips show...)

Doing it your way

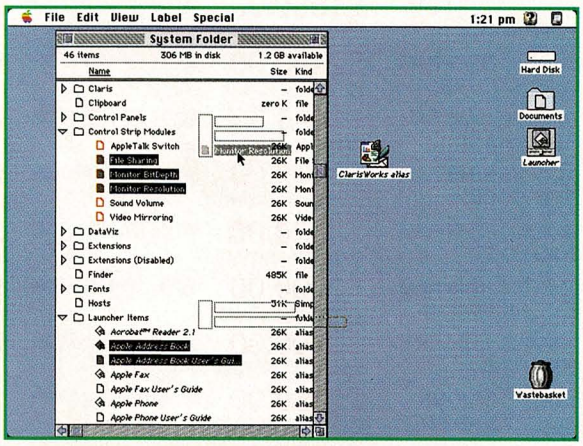
In MACFORMAT 44 you suggested that the Launcher was not much more useful than the Apple menu. However, here are a couple of advantages it does offer. First of all, you can **[option]**-drag any file right off the Launcher and into the Trash – no hassle. Yeah, I know you couldn't do that in prehistoric versions of the System, but, hey, let's get with it.

You can also **[option]**-click on a header button to be taken directly to the folder that contains that button's files. **[Command]**-clicking a header button enables you to change the size of the window icons in that particular window.

Also, you can go into the **Launcher Items** folder in the System Folder and create different windows and corresponding header buttons on the Launcher by creating bulleted folders (that is, changing the folder names by typing an **[option] 8** before them). This gives you ways of conveniently grouping files and applications that you frequently use at only two clicks (or less) away from the Desktop. I have "Utilities" in one window; "Office", "Creative", "Reference" and "Games" are some of my other categories.

By the way, any files or applications that are kept in the top level of the **Launcher Items** folder itself will automatically be filed under "Applications". If you want to have more specific categories than that, put all your files and applications into the bulleted folders of your choice and the "Applications" window disappears.

Justus Paiewonsky, Norway



Use the little triangles to display the contents of folders in list views, and you can [shift]-select several items *in different folders* at one time.

Ready to use

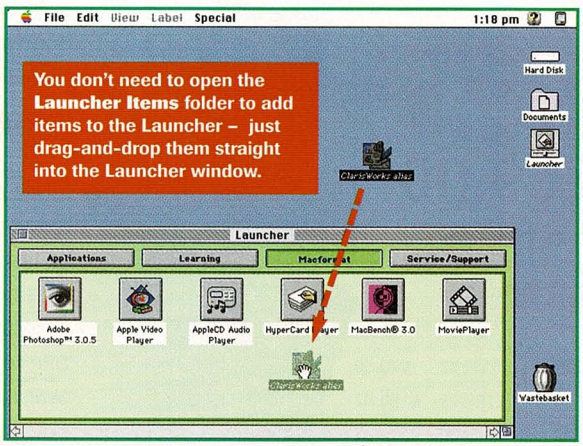
Two important points further to those in your excellent article in MACFORMAT 44.

1. Concerning the Launcher. I would like to defend the Launcher. I was very sceptical at first, and early incarnations were not good. However, the latest version is so good that I couldn't live without it. Here's why.

(a) I have young children who still struggle with drag-selecting in the Apple Menu, but find the Launcher a doddle.

(b) You do not have to open the **Launcher Items** folder to add items or remove them. Just drag the item over the Launcher window and it immediately appears, in alphabetical order. If the wrong Launcher window is open, simply drag the item over the button for the correct window and it will be placed in there.

To remove an item, make sure the Launcher is in the foreground (by clicking on its title bar), then, holding down **[option]**, drag the offending item to the trash. That's all there is to it! (Be warned though, on my Quadra 650 running System 7.5.5, it occasionally freezes the Finder performing this operation – I suspect a Control Panel clash somewhere.)

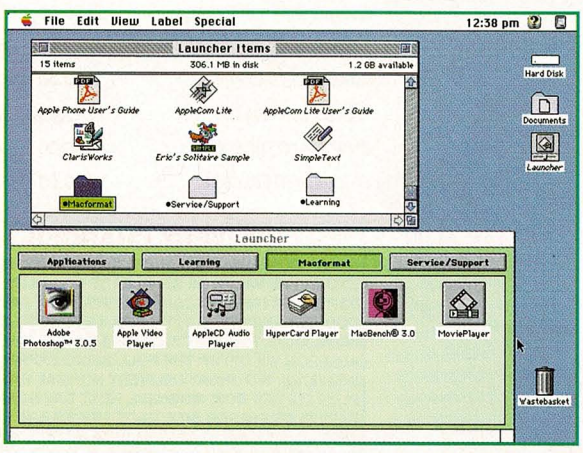


(c) Perhaps most usefully, you can drag-and-drop items onto an application's button in the Launcher and it should behave the same as if you had dragged it onto the application itself. (I have found there are a few exceptions to this – *Shrinkwrap* to name just one).

So the Launcher is really quite a nifty bit of kit, but it hasn't been sold well and started off poorly. Give it another chance and check out AppleGuide for some other not-very-obvious features not listed here (such as changing the button size).

2. Incidentally, when you're viewing windows, using the little triangles to open a folder, rather than double-clicking the folder, enables you to select a group of items that are not necessarily all in the same folder. Taking this to extremes: if you open your hard drive window in List view and then hold down **[shift]** while clicking on one of the little triangles, you can select in one group any or all the items on your hard drive! This can be very useful when backing-up or transferring files between drives, for instance.

James French, Droitwich Spa



You can organise your Launcher items into groups of your choice simply by creating folders with names in the right format.

Did you miss MACFORMAT 44's feature on how to get more from your Mac? Our back issues service is on page 144...

■ Send your tips (not necessarily Launcher ones!) to "Power User", MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.

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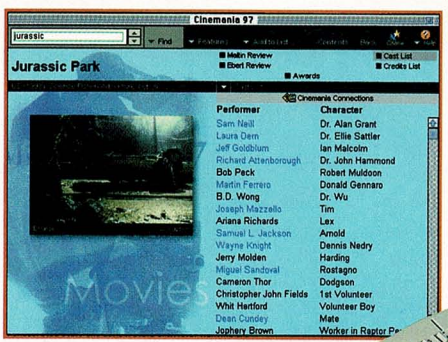

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Have they built a better mouse than yours, or a better keyboard? Our huge group test of input devices starts page 60.

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ON THE CD

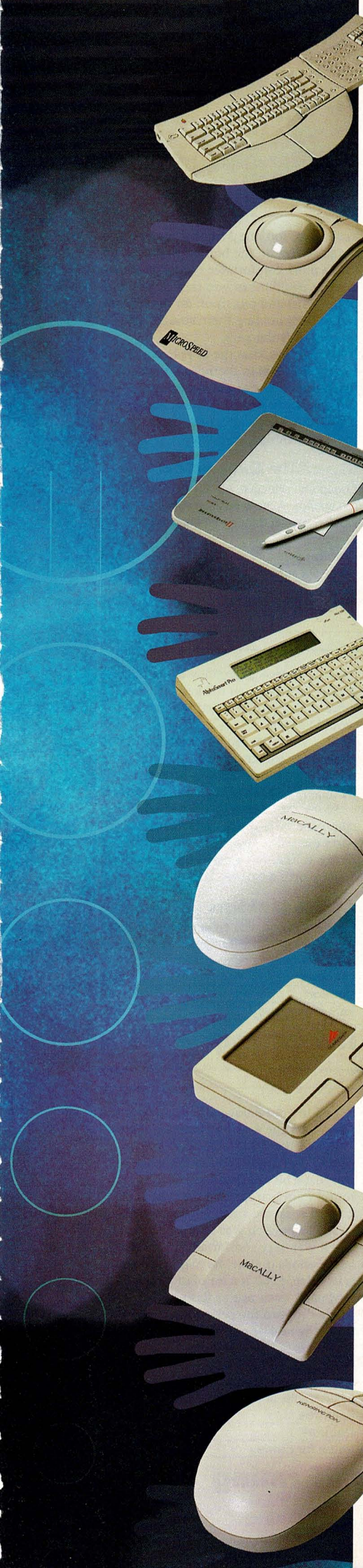
This means there's a demo version, preview or sample on our Cover CD

The MACFORMAT info bar

PRICE	£40	**ON SALE**	Now	**CONTACT**	Future on 01225 442244	**WEB SITE**	http://www.futurenet.co.uk/
MAC	**Processor:** 68030 • **RAM:** 8Mb	**POWERMAC**	**Processor:** 603 • **RAM:** 8Mb	**REQUIRES**	**System:** 7.5 • **HD space:** 5Mb • **Screen:** 640 x 480 • **Colours:** 256		

Price: RRP, inc VAT. **Contact:** The number to call for more information. **Web site:** Usually the maker's site, for more details. **RAM:** The minimum memory your Mac will need to have. Free RAM is the requirement excluding the System. **Processor:** Check the table on page 124 for your Mac.

1
2
3
4
5



Intelligent input

You don't have to settle for the plain grey, basic-but-boring Mac keyboard and mouse – there's a whole host of alternative input devices out there to help you work faster and smarter.

Many, many moons ago, before the Mac got off the drawing board and into people's lives, a furiously heated debate raged throughout the computer industry. Engineers, designers, gurus and visionaries fought and argued over the burning question: how many buttons should a mouse have? Ever the innovator, Apple stuck with the single-button mouse for simplicity and ease of use. The double-click was born.

Not everyone shared Apple's vision, of course. Just to be difficult, the Wintel PC world went with the two-button mouse instead. And over the years, other input devices came into being as well. There's now a huge variety of mice, keyboards, trackballs, trackpads and graphics tablets out there, to make work more comfortable and productive – even a Mac mouse with *four* buttons.

Over the next eight pages, we test the range of input devices available for your Mac. We start with keyboards, then turn to replacement mice and trackballs (page 64). And finally we look at graphics tablets (page 68), which combine a control device with input of a more creative kind. At least potentially. Well, they're easier to draw with than a mouse...

Whatever input device you choose, you'll be using it all the time, so it must be not only robust and well made but also well designed and comfortable to use. So as well as testing devices ourselves, we asked Gordon Adam of Ergonomic Solutions, an ergonomic consultancy which advises the Occupational Health department at Frenchay Hospital in Bristol, to give us an expert opinion on their design and construction.

The key to success?

Not so long ago, the Mac's standard keyboard was a very basic QWERTY affair – in fact, Apple deliberately left arrow keys off the earliest Mac keyboards, to force you to use that new-fangled mouse thing to get around the screen instead. These days, the standard is extended keyboards, with over a dozen Function keys to help you work faster. But even if they're still QWERTY, they're not all just plain arrays of keys any more.

There's even more variety among mice – multiple buttons, programmability, you name it. Short of desk space? Try a trackball – basically a mouse turned upside-down, so you can roll the ball directly. Or perhaps you'd prefer something almost as intuitive as good old pen and paper, in the form of a graphics tablet. Turn the page, and discover an amazing range of input options!

The Apple Desktop Bus

On the Mac, most user-input devices connect via the ADB (Apple Desktop Bus) port. You can connect up to three devices to the ADB port by daisy chaining them together. (Some devices, notably some graphics tablets and joysticks, connect via your Mac's modem port because they need more power than the ADB port can provide.)

PRICE £46 | ON SALE Now | CONTACT Mac Accessory Centre on 0191 296 1500

MacAlly Extended Keyboard

MacAlly's extended keyboard looks very much like Apple's old extended keyboard – it even comes in a similarly-styled box to Apple's. It's a bog-standard extended keyboard with the full QWERTY keyboard layout, 15 Function keys, numeric keypad, and power key for starting your Mac up.

It's moulded out of the usual computer-grey plastic and comes with a generous ADB lead for connection to your Mac, and a one-year warranty The power key is recessed to prevent you accidentally knocking it – handy if you are one of those people with a habit of balancing books on the edge of your keyboard while you're working.

Our ergonomic expert had no praise for QWERTY keyboards (see the Maltron box on page 63), but in this respect the MacAlly keyboard is much the same as any other extended keyboard, since the key positions and keyboard shape are almost universally standard. Like other keyboards, too, the MacAlly has two extendable feet on the bottom to prop it up into a more comfortable typing position – but this could mean you raise your hands at the wrist and put strain on the forearm rather than holding them straight and relaxed over the keys.

We felt, too, that the keys had a rather spongy, soft feel to them, as if they are made out of rubber. On the whole, though, if you need a replacement keyboard, this is a good cheap alternative to the Apple Design keyboard.

MacAlly Extended

Cheap and effective, but the keys are far too spongy. A more positive clicking action would improve things tremendously.

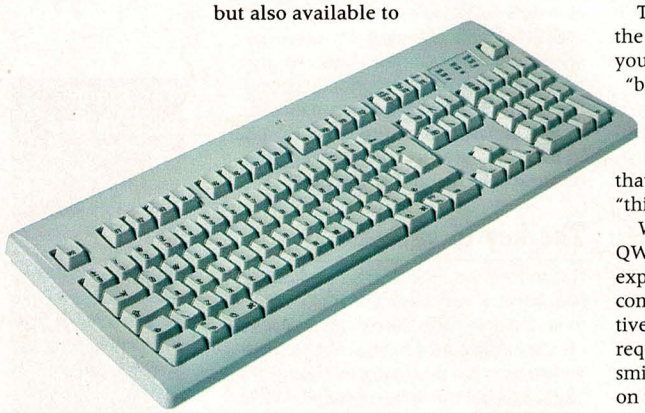
Features	**80%**
Comfort	**78%**
Value for money	**80%**

MF rating 79%

PRICE £73 | ON SALE Now | CONTACT Apple on 0800 127753

Apple Design Keyboard

This is Apple's standard keyboard, as shipped with all Performas since the Performa 630 but also available to buy. It's your plain extended keyboard with QWERTY layout, numeric keypad, and 15 Function keys along the top.



The casing has a solid feel to it, and the colour matches that of your Mac (if you buy the Performa 5400/180 – the "black Mac" reviewed on page 78 – the keyboard comes in charcoal too). The slightly curvy design is plain enough to be inoffensive, yet has just that tiny pinch of innovation to whisper "this is an Apple product".

While sticking to his criticisms of QWERTY keyboards, our ergonomic expert judged this keyboard reasonably comfortable to use – the action is positive, yet not too much muscle effort is required. However, the keys are just a smidgen too clicky for our tastes. Typing on this is the equivalent of wearing tap-dancing shoes – everybody can hear you. A little less travel on the keys and not quite such a punchy click action and it would be ideal.

Also, the ADB cable is permanently attached to the keyboard (and right in the middle too), which is a lot less flexible than having a separate lead.

Sadly, the price isn't quite ideal, either, coming in well above that of most third-party extended keyboards. Paying for design is fine, but a pinch of innovation is not worth a barrow-load of cash.

Apple Design

Solidly built and nice enough for your basic extended keyboard, if rather loud in use, but just a bit too pricey.

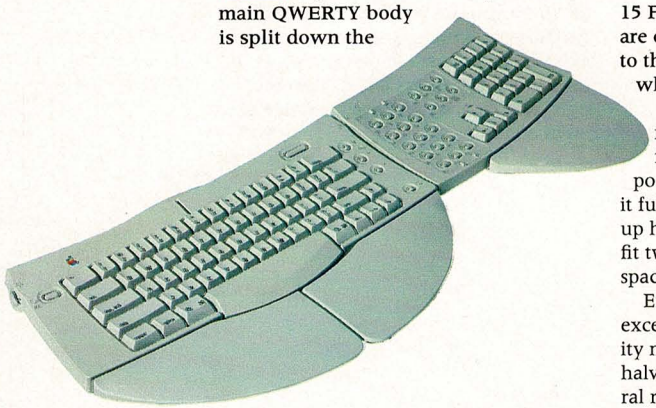
Features	**80%**
Comfort	**81%**
Value for money	**65%**

MF rating 72%

PRICE £166 | ON SALE Now | CONTACT Apple on 0800 127753

Apple Adjustable Keyboard

Ah, now here's a keyboard with buckets of innovation. It actually comes in several parts. The main QWERTY body is split down the middle and the two halves are hinged so that they can be swivelled apart to the angle most comfortable for you. The 15 Function keys and numeric keypad are on a separate board, with connects to the rest of it via a short ADB lead, which is supplied.



Each part comes with its own wrist rest and adjustable feet to help you find the most comfortable typing position. The only problem is that with it fully assembled, the damn thing takes up half your desk – you could just about fit two extended keyboards into the space this thing takes up.

Ergonomically, however, this is a truly excellent design. The range of adjustability means your hands can meet the two halves of the keyboard at the most natural resting position, without you having to pull in your elbows unnaturally or put strain on your wrists by bending them.

In use, the Adjustable takes a bit of getting used to. We found the space bar was just a bit too chunky, and the small round Function keys on the numeric keypad were too small to be practical.

The key action was spot on, though, and it was very comfortable even after long periods of time. Its major bad point is its price. £160 is a lot of money for a keyboard, even one as flash as this. If Apple dropped the price by £50 or so, then it would be a must-buy accessory.

Apple Adjustable

A space-age keyboard which is remarkably comfortable, but bulky and overpriced.

Features	**87%**
Comfort	**91%**
Value for money	**71%**

MF rating 81%

PRICE £234 **ON SALE** Now **CONTACT** Chromasonic on 0181 203 8989

AlphaSmart Pro keyboard

Hang on, what's this? Connect it to your Mac's ADB port and it functions as a normal keyboard, but the AlphaSmart Pro isn't just a keyboard, it's also a portable. It features an LCD display screen and 128K of memory, which enables you to type on the move.

The LCD screen is four lines high and 40 characters long, which is just about ideal for your average sentence (and comparable with the displays on the dedicated text processing hardware of just a few years ago). Below that is what looks very much like a PowerBook keyboard. It has the standard QWERTY computer keyboard layout, plus eight buttons that work as Function keys when connected to the Mac.

In portable mode, these buttons enable you to swap between eight separate files stored in memory. These files can be of different lengths, but the AlphaSmart will only store a total of 128,000 characters or around 64 pages of plain text. It's dead easy to use – just hit one of the keys to open a file (a new one or one you've already begun) and start typing. The text is saved in non-volatile memory as you go along, so even if the batteries die, your work is still safe!

Connecting it up to the Mac puts the keyboard into emulation mode automatically (it takes its power from the Mac to conserve the two AA batteries it normally runs off) and it behaves like any other Mac keyboard. To retrieve the text saved in it, you just launch your word processing software on your Mac and hit the Send key on the keyboard to download your work. It works with any program that has a text editor, but it can't handle text styles such as italics.

In use the AlphaSmart Pro is not an ideal desktop keyboard. The keys are too small, and the action is rather spongy. The lack of a numeric keypad or Mac-native power-on key is a blow as well.

Still, it's a highly practical and affordable portable. Given that entering text is what you'd be doing most of on the move, it's a serious alternative to the rather expensive (if more flexible) PowerBooks, with the same ergonomic shortcomings as all portables we've seen. Writers on the road will find it incredibly useful.

AlphaSmart Pro

A brilliant idea at an affordable price, but as a keyboard it's let down but its small, tightly-spaced keys and spongy key action.

Features	**85%**
Comfort	**72%**
Value for money	**94%**

MF rating 86%

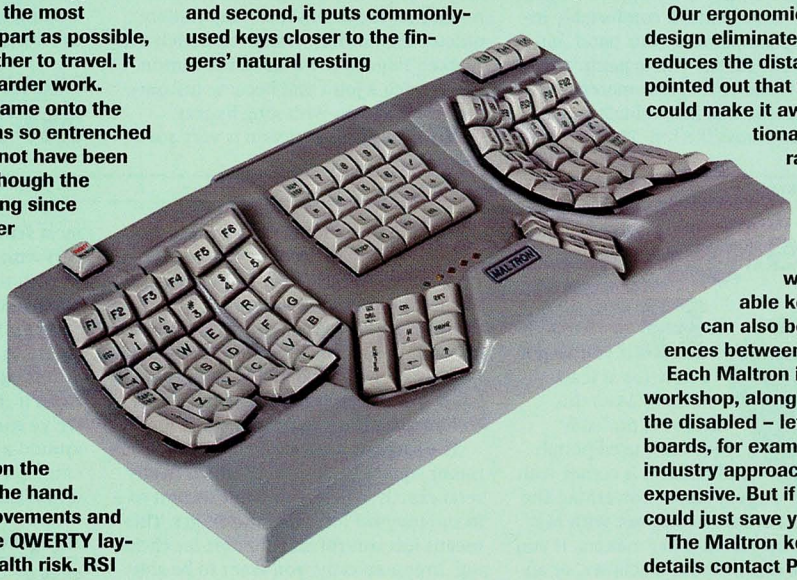
PCD Maltron and the quirks of QWERTY

Back in the bad old days of the ink-ribbon typewriter, pressing down a key caused a lever arm to rise and strike the paper through the ribbon. The problem was, typists were soon able to type so quickly that one lever arm would be rising towards the paper before the previous one had fallen out of the way, with the result that they'd jam together.

To solve this problem, the QWERTY keyboard was developed purely to slow typists down. It did so by positioning the most commonly-used keys as far apart as possible, so the typist's fingers had further to travel. It did the job but made typing harder work.

By the time the computer came onto the scene, the QWERTY layout was so entrenched that anything different would not have been commercially realistic, even though the mechanical limitations had long since ceased to be an issue. But over the years, people came to realise that conventional keyboards aren't good for you. They force the touch-typist's hands into an unnatural position, either with the elbows held in or with the wrists rotated laterally to position the fingers over the "home" keys, causing strain on the forearms and the tendons of the hand. Couple that with the gross movements and stretching necessitated by the QWERTY layout, and typing becomes a health risk. RSI (Repetitive Strain Injury) has been recognised as an occupational hazard for typists.

There have been numerous attempts to design a better, safer keyboard layout, and the Maltron (below) is one of them. Designed by inventor Dr Stephen Hobday, it was developed to replace the QWERTY layout on computers and electronic keyboards. It alleviates the problem in two ways: first, it makes the keyboard a more natural shape to fit the hand; and second, it puts commonly-used keys closer to the fingers' natural resting positions. With the keyboard's manual come testimonials from dozens of users worldwide who would have been forced to stop working were it not for this keyboard – it really works.



The Maltron comes with the standard QWERTY layout shaped to the user's hands, but at the touch of a switch you can change the layout to Maltron's own, which is said to be both faster and more comfortable, though it would take some time to get used to.

Our ergonomic expert praised the way the design eliminates rotation at the wrist and reduces the distance the fingers travel. But he pointed out that the high lip of the Maltron could make it awkward to use at a conventional office desk, forcing you to raise your whole arm from the shoulder in order to rest the heel of your hand in the right place. He preferred the gentler angle of the wrist rest on the Apple Adjustable keyboard – and that, of course, can also be adjusted to suit the differences between individual users.

Each Maltron is hand-made in Dr Hobday's workshop, along with several variations for the disabled – left and right one-handed keyboards, for example. Because of this cottage-industry approach, the keyboards are a bit expensive. But if you suffer from RSI, they could just save your career.

The Maltron keyboard is £440. For more details contact PCD Maltron, 0181 398 3265.

Mice and Trackballs

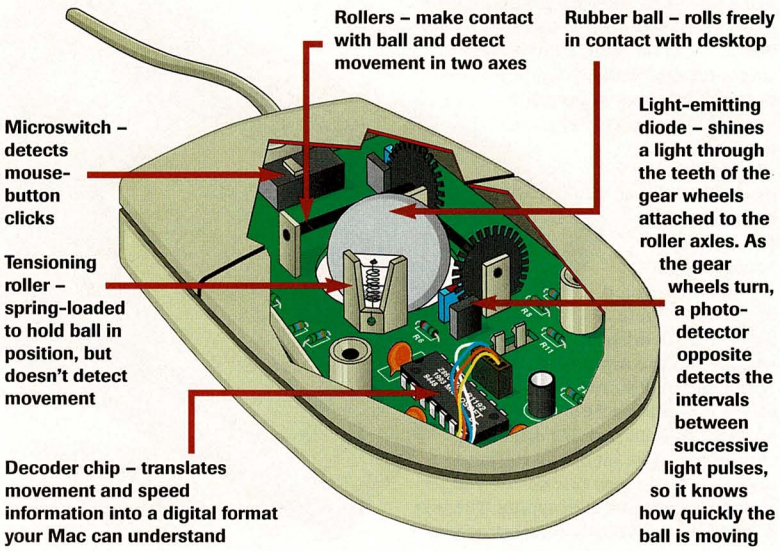
Considering that it's what made the Mac famous, and that it's what you spend so much time fondling, the mouse receives very little thought. Here we look at a wide variety of replacements for your beloved rodent, some with two, three, even four buttons.

From an ergonomic point of view, a mouse can be an ideal control device. Gordon Adam, our ergonomic expert, says that the key to choosing a mouse is to start with your hand in a comfortable resting position. Let the forearm lie level along the desktop, with the wrist unbent and the muscles of the hand relaxed. The hand should sit in a kind of natural arch, with the knuckles raised and the heel, side, thumb and fingertips in contact with the desk.

An ideal mouse should nestle under your hand in this position, without you having to raise the hand at the wrist. You want to be able to move the mouse pointer around the screen keeping the forearm level and the wrist in line. Clicking the button should require minimal finger movement or muscular effort, but the click action should be positive.

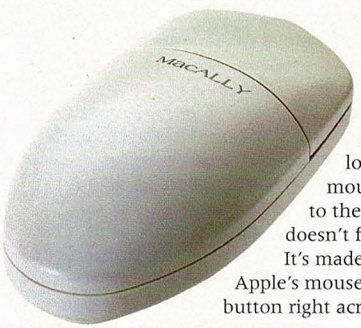
For those who have never really built a rapport with their mouse, we have some more exotic offerings in the form of trackballs. These essentially turn a mouse upside down so you move the mouse ball while the rest of the unit stays still. Ergonomically speaking, they require more muscle effort and grosser movements because you typically raise your hand to the ball rather than leaving it in resting position. Some people swear by them, though, saying they are quicker than a mouse, more accurate, and more fun to fondle. The choice is yours... And there's certainly quite a range to choose from.

A mouse dissected...


Rollers – make contact with ball and detect movement in two axes
Rubber ball – rolls freely in contact with desktop
Microswitch – detects mouse-button clicks
Light-emitting diode – shines a light through the teeth of the gear wheels attached to the roller axles. As the gear wheels turn, a photo-detector opposite detects the intervals between successive light pulses, so it knows how quickly the ball is moving
Tensioning roller – spring-loaded to hold ball in position, but doesn't detect movement
Decoder chip – translates movement and speed information into a digital format your Mac can understand

PRICE £17.95 **ON SALE** Now **CONTACT** Mac Accessory Centre Ltd on 0191 296 1500

MacAlly Single Button



This is very similar to the mouse you get bundled with some of the latest Mac compatibles, slightly narrower and somewhat longer than Apple's current mouse. It fits comfortably into the palm of your hand, but doesn't fill the whole palm.

It's made of a similar material to Apple's mouse and has a single large button right across the top. The switch is sensitive and requires a very light touch to activate. This isn't necessarily bad (it does mean less muscle effort), but you may find yourself clicking by accident when just resting your finger on the button – or worse, feel you must hold your finger up off it. Our ergonomic expert noted that the click action was audibly quieter than others. However, he felt the marked ridge at the edge of the button could catch a joint and become uncomfortable for users with long fingers.

The overall construction is very solid and the mouse ball cover firmly rotates into place. Two screws hold the top and bottom halves together, which means you can take the mouse apart to clean out the fluff that can get caught on the light sensors – something you can't do with Apple's hermetically sealed mouse.

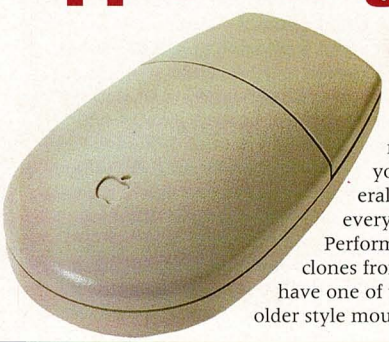
It's not different enough from Apple's offering to make it a must-buy, but if your mouse passes away and you're looking for a replacement, then at just £17.95 this one is excellent value.

MacAlly Single Button

MF rating 87%

PRICE £29.38 **ON SALE** Now **CONTACT** Apple on 0800 127753

Apple Design II



Hmm, what can we say? If you've got a new (or at least newish) Mac, this mouse is probably your most used peripheral already. It comes with every Apple PowerMac and Performa – but not with Mac clones from other makers. If you have one of those machines, or an older style mouse like the first Apple Design mouse (a square boxy thing that looked vaguely like a door wedge), or if your current mouse dies, is it worth buying this one to replace it?

It's a shapely curved thing that fits neatly into the palm of your hand – comfortably enough if you have an average hand, but it may prove a little bulky for children or others with very small hands.

The single button at the front has a rather square leading edge which neatly rests exactly where you don't want it to – in the topmost joint on your finger. This means less control and comfort for clicking. Ergonomically, you want to be able to click with the pad of the fingertip – the most sensitive part, and therefore the part with most precise control – and do so with minimal movement of anything more than the top joint.

Other than this, the Apple mouse is a dream to use, with a positive clicking action, and it is easy to get at the ball to clean it (though on some examples of it we've tried, the ball does seem to rattle around a lot). At £30, after a recent price cut, it's a good enough mouse, if lacking in the extra features department.

Apple Design II

MF rating 83%

PRICE £35 **ON SALE** Now **CONTACT** Mac Accessory Centre Ltd on 0191 296 1500

Mouse in-a-Box

Kensington has a range of three Mac mice. This is the basic direct replacement for your old Apple II mouse. It's somewhat fatter than Apple's, but this makes it very comfortable. It fills the palm and supports the hand in its natural relaxed position with the thumb resting in a well designed contour at the side, though it might prove too big for kids. Whatever size your hand is, your fingertips will fall on the gently-sloping button, making it easy to click without having to draw the fingers up.

Clearly, a lot of thought has gone into the design – and all the Kensington mice come with a hefty manual containing an excellent section of sound ergonomic advice on work habits and position.

Five nylon pads on the base of the mouse ensure that it glides smoothly, and it proved very responsive and accurate, with a more positive button click than the MacAlly mouse. It's made of a sturdy plastic, with a noticeably smooth finish you'll either love or loathe. A five year guarantee backs up the build quality.

It's easy to get at the ball to clean it, but there are no screws like those in the MacAlly mouse, so you won't be taking this apart for regular maintenance. This is a wolf in mouse's clothing, superbly designed and well made – but at twice the price of the MacAlly, you do have to pay for what you get.

Mouse in-a-Box

MF rating 85%

PRICE £35.25 **ON SALE** Now **CONTACT** Cremenco on 01959 577002

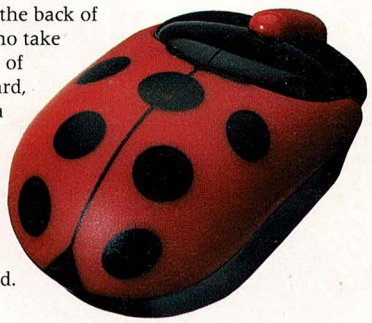
BeetleMouse

The BeetleMouse is available in many and varied (but all garish) colour schemes, including a ladybird paint job. This gives it instant child-appeal, and in fact it is markedly smaller than other mice – probably slightly too small for average size adult hands. Our ergonomic expert noted that if you nestle it in your palm, your fingers will hang right over the top edge – and there is quite a sharp ridge all around, which might irritate your thumb after a while as well. The buttons are rather loose, and if you have big hands you could find it all too easy to catch your top joint under them and pull them *up* by the ridge.

It's a very light mouse, and the plastic casing feels very flimsy. The mouse ball cover falls off too easily. There are two main buttons, which, alas, both act the same (as normal buttons) and are not programmable. A third, raised, button sits between them and acts as a click lock – that is, the same as holding down the mouse button.

The cable is all of 1.7m long – great if you plug your mouse into the back of your Mac, but for those who take the more regular approach of attaching it to their keyboard, the spare cable is actually a bit of a nuisance.

Kids might go for the paint schemes and find the rounded shape comfortable in small hands, but this is too flimsy and rough-edged to recommend.



BeetleMouse

MF rating 62%

PRICE £39 **ON SALE** Now **CONTACT** Mac Accessory Centre Ltd on 0191 296 1500

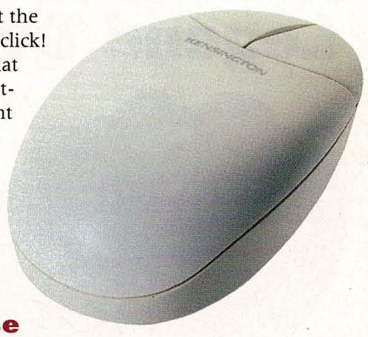
Kensington two-button

For just £4 more than the Mouse in-a-Box, you can get the next mouse in the Kensington range, identical except that the large button is split down the middle into two.

It has the same superb design and build quality, sits as nicely in the hand, and the buttons are both as positive and effort-free in action. But the reason you are going to pay £39 for this mouse is the accompanying *MouseWorks* software. This enables you to fully program both buttons. Actually it's three buttons, because pressing both at the same time makes them act as a third button!

Each button can be programmed to do a bewildering variety of tasks. They can, for instance, act as a double-click or click lock. Perhaps more usefully, they can also perform keyboard shortcuts such as **[command] S**. Even more impressively, you can record short macros that execute a series of commands and thus do repetitive tasks for you. It's no substitute for a full macro program such as *QuicKeys*, but it does mean you can save a document, close its window, then quit the application, all with just a click!

The only limitation is that you can't configure the buttons differently for different applications, so that a button zooms-in in your graphics program but not in your DTP program, say. But this apart, it's a truly excellent mouse with top-notch software.



2-button mouse

MF rating 89%

PRICE £46.95 **ON SALE** Now **CONTACT** Gasteiner on 0181 345 6000

Green Mac Optical

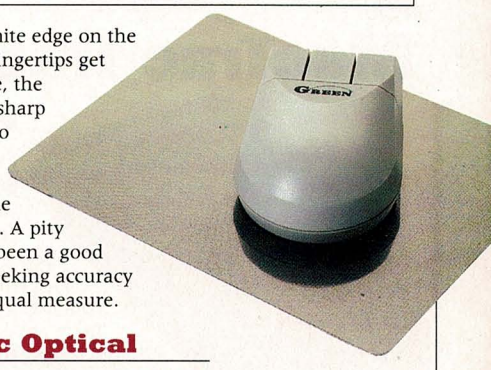
No, not an environmentally friendly mouse – it's the maker's name. But this is unusual: it's the only optical mouse on test here.

Unlike conventional mice, optical mice have no moving parts. Instead of a ball and rollers, they use reflected light. Two small light transceivers sit on the underside of the mouse, and when the mouse moves, they detect the change in light pattern reflected from the specially etched surface of the mat.

The advantages are several. No moving parts means it doesn't wear out, and fluff doesn't get stuck in the rollers. It's also more accurate and sensitive than a standard mouse. The only real drawback is that you have to use the special mat provided. Don't lose it!

On this particular mouse there are three buttons. One is a standard button, one double-clicks, and one is a click lock. Sadly, they are not programmable.

The rounded end sits comfortably in your palm, but our ergonomic expert found the body of the mouse quite short, and there's a definite edge on the buttons, so your fingertips get no support. Worse, the mat is small with sharp edges, and tends to slip around under your hand unless you lift your whole forearm to clear it. A pity – this could have been a good choice for users seeking accuracy and gadgetry in equal measure.

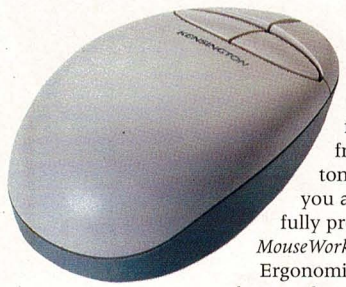


Green Mac Optical

MF rating 79%

PRICE £54 **ON SALE** Now **CONTACT** Mac Accessory Centre Ltd on 0191 296 1500

Kensington Thinking Mouse



Top of the Kensington cheese mountain is the Thinking Mouse. It's the same basic design again, but now with four buttons. Again, the front pair act as an extra button when pressed together, so you actually have five buttons, all fully programmable using the same *MouseWorks* software as before.

Ergonomically, the shape is still lovely, but you have to draw your fingers up into a claw to press the two inner buttons, involving a lot of tendon work. Less movement would be better – but two extra programmable buttons could mean you work with less effort all round. The *MouseWorks* utility really comes into its own here. You can set one button, for instance, to constrain cursor movement to straight up and down or straight across when it is pressed down – great for keeping relaxed while aligning objects!

Other effort-saving features abound. Apple's **Mouse** Control Panel enables you to set the speed of the mouse, for instance, but this gives much greater flexibility. You can set the pointer to move fast if you move the mouse quickly, say, but to travel over less distance if you move the mouse over the same distance slowly, giving fine control at low speeds.

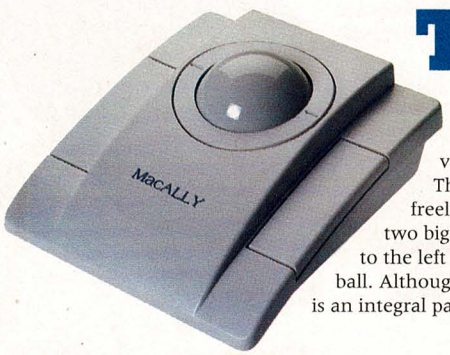
You can even set "hotspots" on-screen, so the cursor jumps from one to another as soon as you move the mouse in the appropriate direction. Amazing software to get the best from a fine mouse.

Thinking Mouse

MF rating 86%

PRICE £29 **ON SALE** Now **CONTACT** Mac Accessory Centre Ltd on 0191 296 1500

MacAlly Trackball



The MacAlly trackball is as well built as its mouse, and seems to offer the same value for money. The large ball rolls freely, and there are two big buttons directly to the left and right of the ball. Although the ADB cable is an integral part of the base unit, there is a second port for attaching your mouse too if it starts to feel lonely.

Trackballs aren't for the majority of users. Their main advantage is the small amount of desk space they take, and the precision you can achieve with them. But mice seem more natural to use, perhaps because they're what we all start off with. Ergonomically, a trackball involves more muscle work because you have to raise your fingertips to the ball, while you just cradle a mouse under a relaxed hand. Also, precise adjustment usually means lifting your fingers off the ball and nudging it, unlike just sliding a mouse.

The two buttons here are not programmable, and if your fingertips are on the ball your thumbs almost miss the buttons, so you have to move your hand or rotate the wrist to click. The sloping front does seem to offer some wrist support, but then you have to crook your hand to get your fingers to the ball.

£29 is a low price for such a sturdily made pet. If you fancy the exotic world of trackballs, this is a good place to start. But, our ergonomic expert warns, trackballs will be tiring for lengthy use.

MacAlly Trackball

MF rating 79%

PRICE £47 **ON SALE** Now **CONTACT** Cromenco on 01959 577002

Legend Trackball

This looks vaguely reminiscent of the small alien ships in *Independence Day*. In fact, its rounded shape is designed to fit snugly into the palm of your hand, and it does, so long as you're right-handed. With your hand in a relaxed position, your thumb rests on the trackball, with your index and middle fingers on the two mouse buttons. As on the Beetle-Mouse from the same maker, the buttons are not programmable, but there is a click lock button in the middle.

The position is comfortable, except that there's a potentially annoying lip round the bottom edge, and you definitely feel the bulbous lump in the centre of your palm, which seems to be meant as some sort of positioning guide. The surface is shiny and feels as if it will pick up grease and perspiration rather readily.

The click action is spongy, with too much travel on the buttons after they've clicked. The trackball itself moves less smoothly than any other tested here, though to be fair it doesn't take a huge amount of effort to move it. Ergonomically, it's odd to use your thumb for this: really the thumb is designed to move only in one plane, laterally, and the fingers are capable of much more precision. You'll find you lift your thumb up and "flick" the ball – hard work after a while.

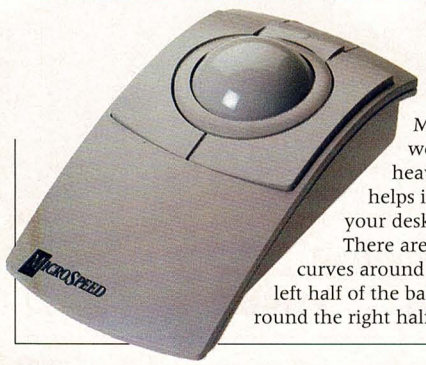
This trackball is certainly novel, and there's been an effort to consider comfort of use, but it's not particularly practical.

Legend Trackball

MF rating 68%

PRICE £58.75 **ON SALE** Now **CONTACT** Microspeed on 0171 720 0592

MacTrac Trackball



The first thing you'll notice about the MacTrac from MicroSpeed is its weight. At 12oz it's a heavy beast, which helps it to stay steady on your desk.

There are three buttons. One curves around almost the entire left half of the ball, with the second round the right half. The size of these buttons makes them easy to find, however you choose to position your hands. The third, smaller, button lives at the top of the ball and requires the hand to stretch forward to reach it.

The large ball rolls roughly and noisily, with considerable apparent friction. This may make it tiring. Again, if you rest the heel of your hand on the sloping front of the casing, you have to lift your fingers to get the fingertips to the ball. More importantly, your thumbs will be nowhere near the buttons, so clicking always necessitates gross hand movement.

By default, the buttons are set to perform a single click, a click lock, and a **[shift]**-click. The buttons are programmable via the accompanying software, but it looks rather anaemic compared to Kensington's *MouseWorks*. Instead of being able to program little macros, you can only select from a few predefined shortcuts, such as Cut, Copy and Paste.

There's no second ADB port, so you can't attach a mouse as well. But you may not want to; as trackballs go, this is bearable, though hard work in the long run. Pity it's let down by the software.

MacTrac Trackball

MF rating 74%

PRICE £69 **ON SALE** Now **CONTACT** Mac Accessory Centre Ltd on 0191 296 1500

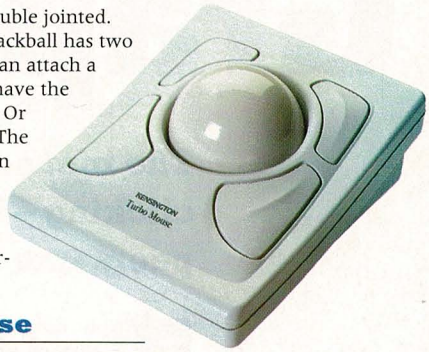
Kensington Turbo Mouse

Actually, this isn't a mouse at all, but another trackball. It comes with Kensington's *MouseWorks* software, which you use to program the four buttons. Again, two of the buttons can be pressed in unison to give you five buttons, all fully programmable.

The ball itself is very large and heavy, and although nothing physically holds it in place (making it very easy to take out and clean if need be), its sheer weight keeps it steady. It rests on three low friction rollers, so it rolls very smoothly and effortlessly indeed. However, the ball stands very proud of the base unit, so you have no option but to hold your whole arm up to use it or raise your wrist at an angle of 45 degrees or more.

The buttons too are placed very awkwardly. Only two buttons are easily accessible, and even then you can press them only with the thumb, using either a wrist rotation or a very unnatural downward strike. Pressing the other two buttons requires letting go of the ball, and as for pressing two buttons simultaneously, you'd need to be double jointed.

Mind you, this trackball has two ADB ports, so you can attach a mouse as well and have the best of both worlds. Or stick to the mouse. The excellent Kensington software and good quality of build are wasted here on an awkward, uncomfortable design.



Turbo Mouse

MF rating 70%

PRICE £89.95 **ON SALE** Now **CONTACT** PDQ on 0121 344 4241

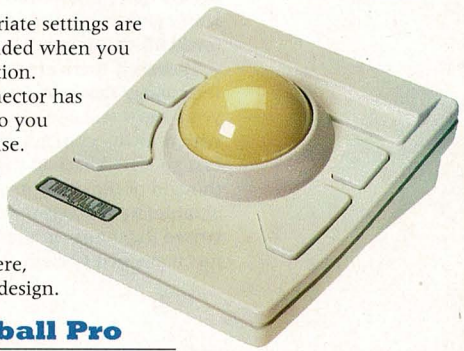
CH Trackball Pro

The TrackBall Pro isn't going to win any beauty awards, and its ugliness is off-putting. But give this ugly duckling a chance. The ball stands more proud of the base unit than on the other trackballs, and this makes it easier to use if your hands are continually moving to the keyboard and briefly back again. In fact, it feels somewhat like those huge trackballs you used to find on arcade basketball games years ago.

Ergonomically, however, there's no attempt to give any support for the hand, so this will be tiring after only a short time, and the ball is extremely noisy – you wouldn't want an office full of these!

The four buttons are disappointingly small, making them unnecessarily fiddly to use, and again it takes gross movements to reach them. However, they are fully programmable. You can allocate almost any keyboard shortcuts to any of the four buttons. You can't record macros as you can with *MouseWorks*, but where this trackball really scores is that you can have separate settings for each application. The appropriate settings are automatically loaded when you open the application.

The ADB connector has a through port, so you can attach a mouse. If you must get a trackball and don't mind paying for features, you get plenty here, despite the poor design.



CH Trackball Pro

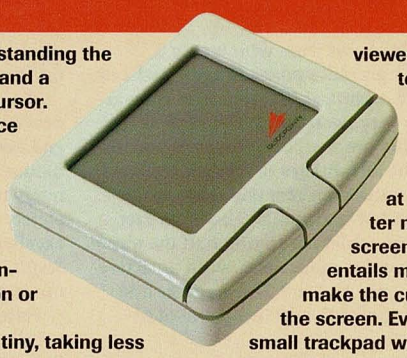
MF rating 72%

Track Pads

Have you seen or used one of the latest PowerBooks? They have trackpads now instead of the older trackballs. These are flat blank surfaces that can sense your finger movement. Wiping your finger across the pad causes the pointer to move on the screen in the corresponding direction.

It can feel strange, but our ergonomic expert noted that there is nothing more natural than pointing, and a trackpad is in fact the nearest thing to a touch-screen, where you literally point where you want to go.

A very good feature is the ability to "click" the mouse button by tapping the surface. This works intelligently, understanding the difference between a tap and a minor movement of the cursor. Double-tapping the surface also works fine. Or you can use the two real buttons at the base of the unit, one of which clicks, while the other is a click lock, but this will involve either thumb rotation or gross hand movement.



In its favour, the unit is tiny, taking less desk real estate than any other device reviewed here. The ADB connector is split, meaning that you can attach two devices to it, so you can also have your mouse.

On the down side, even at its fastest speed the pointer moves fairly slowly on screen. On a larger monitor this entails much finger movement to make the cursor travel the width of the screen. Even on a small screen, a small trackpad will be significantly less accurate than a mouse or trackball.

Which one's for you?

It must be very difficult for mouse manufacturers. After all, the only thing you get bundled with every Mac nowadays is a mouse. Everybody has one. Why would you go to all the trouble an expense of buying another?

There are several reasons. First, your mouse – every mouse – has a limited life. It's a terrible and empty feeling, suddenly being mouseless. Some people can't face the risk, so they get a backup mouse. For others it's too late, and they're forced to seek out a replacement.

Second, mice make great presents for people whom you like too much to give a box of chocolates, but not enough to buy them a new Mac.

Third, and this is the crucial one, your mouse is arguably the most important component of your computer. If you can improve on your mouse for £50 or so, it might be the best upgrade available for your machine. A programmable mouse, for instance, could save you a great deal of time – and physical effort – if you find yourself often repeating the same action.

Your choice is very much a matter of personal preference. The bottom line, says Gordon Adam, our ergonomic expert, is whether a device feels good in your hand (or under it). At the same time, don't underestimate the importance of ergonomic factors – remember those typists suffering RSI and painful tenosynovitis brought on by working with poorly designed equipment. From this point of view, Gordon Adam felt that some of the devices on test were "absolute horrors". Nevertheless, one might suit the way you prefer to work and be perfectly safe for you. On a small desk, a trackball can be a better option, and some people just prefer them to mice.

The ideal is to try before you buy, if you can. A pity you can't take a mouse home for a week or two to see if you like it or not. But remember, a mouse is for life, not just for Christmas.

Graphics tablets

The mouse is a fabulous device and ideal for pointing and clicking – but when it comes to art, it's a dog. Alistair Dabbs peers into the more precise world of graphics tablets.

The invention of the mouse marked a revolution in the computer industry, a movement away from the dated text-based user interfaces to the more intuitive graphical interface. These days, a computer without a mouse (or at least some point-and-click device, like a trackball or trackpad) is unthinkable.

However, there are drawbacks to a technology that was developed over 30 years ago – and a major one has to do with drawing graphics. When the mouse first appeared back in the '60s, nobody thought of the computer as a serious graphics tool. It was the Mac that popularised the mouse in the '80s, and it also just happened to come with a ground-breaking little program called *MacDraw*. Suddenly drawing and painting on computers became a real possibility.

If you've ever dabbled with any kind of graphics program on your Mac, you'll know that trying to draw with a mouse is clumsy and unintuitive – a bit like trying to draw with a brick while wearing boxing gloves. Enter the graphics tablet.

A graphics tablet in its basic form is a pen and a mat. Moving the pen over the surface of the mat moves the cursor on-screen. (The mat is not merely pressure-sensitive: the pen is electronic and the mat detects changes in capacitance as the pen moves across its surface or close to it, so that it can trace through fairly thick materials without having to come into contact with the tablet's surface directly.)

It's a much more natural tool to use for drawing and painting, with a higher degree of accuracy than most mice or trackballs. If you use your Mac for more than the occasional dabble, a graphics tablet is a sound investment. Most come with intelligent drivers for use with programs like *Fractal Design Painter* or *Adobe Photoshop* that can mimic real drawing tools by detecting how hard you press down and adjusting the density of the "ink" on the page accordingly. And, of course, you can also use them as normal control devices (like your mouse) and manipulate files on the Desktop, launch applications, and edit documents. We've quoted list prices, but do shop around!

PRICE £158 **ON SALE** Now **CONTACT** Computers Unlimited on 0181 358 5857

Wacom ArtPad II

MACFORMAT Classic

Not everyone who wants a graphics tablet is a fine artist or technical illustrator, as Wacom proves very neatly with the ArtPad II. With this product, everyone can benefit from the advantages of using a stylus without the high cost and desk space overhead of traditional tablets. In fact, it's a tiny tablet occupying half the size of an average mouse mat, with an active area of only 12.5 x 9.5cm – and at first sight, it looks totally incapable of replacing a mouse. How wrong first impressions can be.

The accuracy and tracking smoothness of the stylus over the tablet are far and away more advanced than that of a mouse, and the active area maps accurately to the screen. It also does so completely automatically, thanks to Wacom's excellent drivers, although be aware that *StuffIt Lite* doesn't seem to like them very much (*StuffIt Deluxe* works fine).

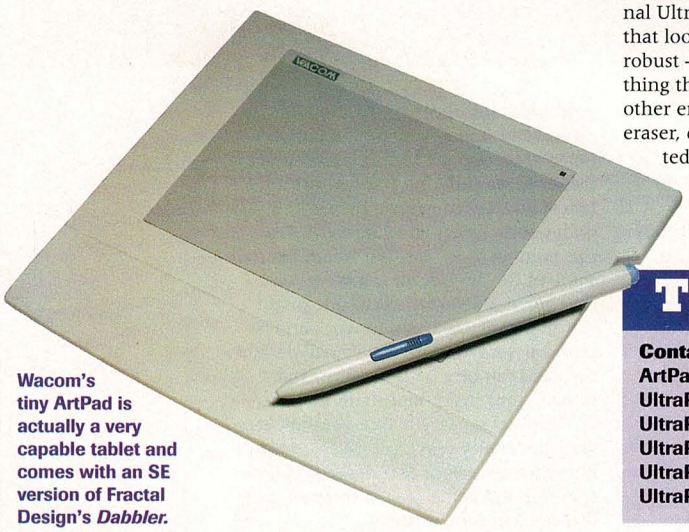
Paired with the ArtPad II is the original UltraPen Eraser, a very slim stylus that looks and feels like a lightweight – if robust – ballpoint pen. It also has something that looks like a pencil eraser on its other end, which really does work as an eraser, depending upon how it is supported in particular software packages. In all word processors, at least, you can drag the eraser end of the stylus across text to delete it in one stroke. Both ends of the stylus are pressure-sensitive, so the eraser can be used for art effects too.

To finish off an excellent product, Wacom is bundling a Special Edition version of the excellent *Dabbler 2.0* from Fractal Design, the inclusion of which helps indicate the type of buyer that the company hopes to attract to the ArtPad II. However, you can use the ArtPad II for business and *Photoshop* work just as effectively – in fact, in any situation where an inaccurate mouse with its habitually sticking ball technology is going to irritate. Once you try an ArtPad, you'll never want to go back.

Wacom ArtPad II

A little expensive, but the quality is superb and the UltraPen Eraser is simply brilliant.

MF rating 90%



Wacom's tiny ArtPad is actually a very capable tablet and comes with an SE version of Fractal Design's *Dabbler*.

The Wacom range

Contact: Computers Unlimited, 0181 358 5857

ArtPad II (+ UltraPen Eraser, *Dabbler 2.0SE)*	£158
UltraPad A5 (+ UltraPen Eraser)	£386
UltraPad A4 (+ UltraPen Eraser or UltraPoint Ergonomic)	£540
UltraPad A3 (+ UltraPen Eraser or UltraPoint Ergonomic)	£868
UltraPad A3 Electrostatic (+ UltraPen Eraser or UltraPoint Ergonomic)	£985
UltraPad A2 (+ UltraPen Eraser or UltraPoint Ergonomic)	£2,114

PRICE £540 **ON SALE** Now **CONTACT** Computers Unlimited on 0181 358 5857

Wacom UltraPad A4

In graphics tablet parlance, "A4" actually means 12 x 12 inches. In other words, this is a very large piece of kit with a serious price label attached, aimed at serious artists and CAD (computer aided design) technicians. The UltraPad A4 is not just a big ArtPad, but an entirely different device for a different type of user.

The size of the unit is such that it cannot rely upon power from the ADB port; instead, it attaches to one of your Mac's serial ports (normally the modem socket) and receives power from an external supply. Usefully, the cables have been designed in such a way that the power supply plugs into the serial plug at the back of the Mac, leaving a single cable trailing from the back of the tablet, rather than the usual two. There is an on/off switch on the tablet.

Across the top edge of the active area of the Ultrapad there is a row of hotspot buttons. These provide single-tap access to 20 programmable functions, driver set-up and additional pressure-sensitivity controls. The expanse of the main active area below is excellent for most standard tracing and technical design work when used with a large monitor – but it will also go down well if you're an artist with a frantic or sweeping style. If, however, your art is more on the minimalist side, you might find the smaller UltraPad A5 better value.

The tablet is supplied with your choice of either an UltraPen Eraser or the UltraPad Ergonomic four-button puck. The former is Wacom's newer stylus with the same eraser head but with two buttons on a rocker switch instead of one. If your work is more concerned with tracing and technical illustration, you'll find Wacom's puck to be just about the finest you can buy. It has been beautifully designed to resemble an ergonomic mouse, but is light as a feather and moves like silk.

The UltraPad A4 is excellent quality, but pricey at the official list price.

For the more serious pro, the UltraPad comes with not only a larger drawing area, but a very precise puck that doubles as a rather good mouse.

Wacom UltraPad A4

Very well made indeed, with the excellent UltraPen Eraser or puck. At the street price of nearer £350, a great buy.

MF rating 85%

PRICE £116 **ON SALE** Now **CONTACT** Calcomp on 01734 320032

Calcomp DrawingSlate II A6

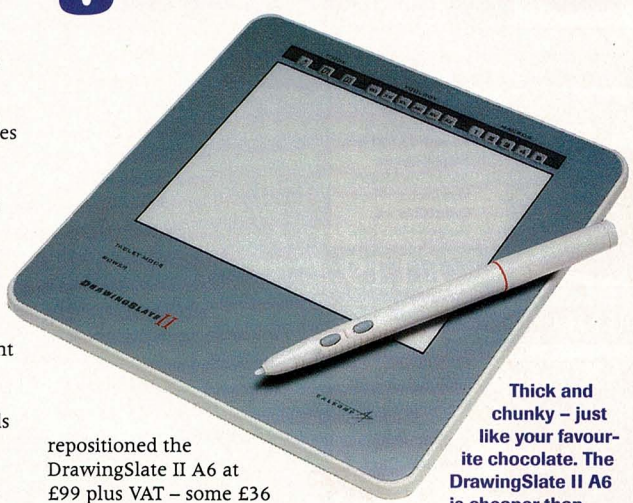
This entry-level model in Calcomp's DrawingSlate II range is a compact and highly usable tablet for everyday purposes, and is accompanied by a pressure-sensitive stylus. To this extent, you might get the impression that it is just like Wacom's ArtPad II, but in fact the DrawingSlate II A6 provides several unique features.

The most obvious difference is that the DrawingSlate II incorporates a row of hotspot buttons for accessing three tracking options, six special tools and five programmable macros (pre-set lists of commands that can be activated by a single command such as clicking). This product is already more functional than any other A6 tablet on the market – and it may be this additional functionality that explains why the DrawingSlate II A6 seems to be so thick and chunky compared to the low-rise ArtPad II.

Calcomp also supplies a two-button stylus with the tablet. To be honest, this is the weakest part of the package – it just doesn't feel as good as the UltraPen Erasers from Wacom. Instead, the Calcomp stylus is chunkier, like a fountain pen, and the pressure-sensitive nib rattles about unpleasantly as you tap away on the tablet. That said, this is something you can adjust to fairly quickly, and the product name itself – DrawingSlate – suggests that few people will be buying it for writing purposes.

The stylus does, however, use its own battery, which, it can be safely assumed, will run out at an inconvenient time and require replacement just as you've created your latest masterpiece. On a more positive note, the battery aids the stylus's sensitivity, and you can use the DrawingSlate II to trace over some surprisingly thick materials without the tablet losing track of the nib position, which is quite impressive.

Perhaps most significant of all is Calcomp's attitude towards pricing, having repositioned the DrawingSlate II A6 at £99 plus VAT – some £36 cheaper than Wacom's ArtPad II – and included a three-year hardware warranty. If your budget is tight and you can live without an eraser stylus and a copy of *Dabbler*, Calcomp provides the more attractive option.



Thick and chunky – just like your favourite chocolate. The DrawingSlate II A6 is cheaper than Wacom's ArtPad II and has programmable buttons too.

DrawingSlate II A6

Superb value for money – just as well made as Wacom's tablets, with a brilliant range of highly usable features. Only the inferior-feeling, less functional stylus lets it down.

MF rating 86%

The Calcomp range

Contact: Calcomp, 01734 320032

DrawingSlate II A6 (+ cordless pressure pen)	£116
DrawingSlate II A5 (+ cordless pressure pen or cursor)	£294
DrawingSlate II A4 (+ cordless pressure pen or cursor)	£411
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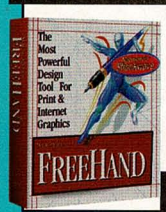

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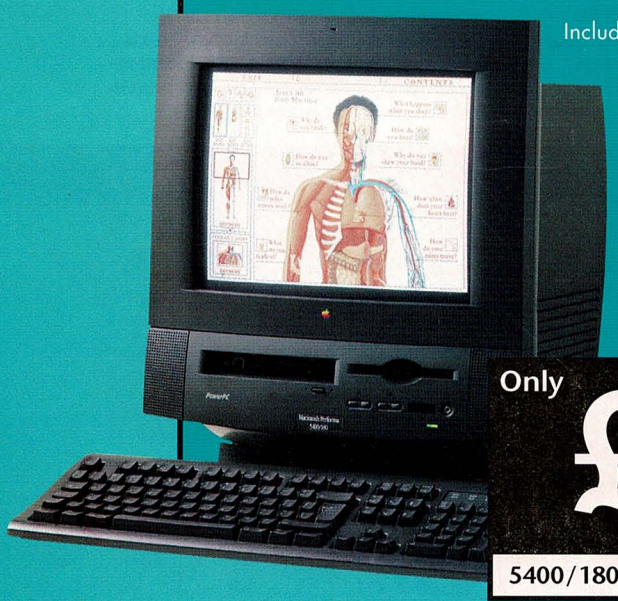

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Agfa SnapScan and StudioStar

The Agfa name is synonymous with professional pre-press and printing equipment, but Agfa's latest scanners are designed for the small office and home. Lindsay Bruce checks out how they measure up.

Agfa has been in the publishing business for years, far longer than the Mac, or any other computer for that matter. Back in the bad old days when image manipulation and artwork involved a darkroom and a camera the size of a fork-lift truck, the Agfa logo adorned everything from the film to the red light above the door. But times change, and now your humble Mac can do more with image manipulation than any camera and operator – and it will do it far faster too. Agfa now makes professional flatbed and drum scanners, as well as maintaining its more traditional graphics equipment and materials business. Its two latest offerings, however, are aimed at the small office and home market. So, how do the Agfa SnapScan and StudioStar compare against young upstarts such as Umax?

Compact, relatively cheap, but sadly falling short on the quality front – the Agfa SnapScan.

The two scanners share many features, including documentation and bundled software. *FotoLook* is a batch scanning program for queuing multiple-scan jobs, and comes with *FotoLook PS*, the *Adobe Photoshop*-compatible plug-in for scanning. *FotoLook* has all the usual scanner plug-in features, including a pop-up list of scanning resolutions, colour depth, manual and automatic gamma correction, de-screen, sharpening and so forth. It does, however, suffer from a rather unfriendly interface. All of the options are accessed via pop-up menus of the same dull grey colour, and no on-line help is available. In comparison, *FotoSnap* is a less complex plug-in for the first-timer – simplifying the scanning process down to a couple of pop-up menus – but again, the interface is rather uninspiring.

For image editing, you get *Color It! 3.0*, which supports the *Photoshop* plug-ins. *Color It!* is basically a simpler version of *Photoshop* and, while it doesn't have the speed or sophistication of the latter, it is a very capable program in its own right.

Finally, there's *SoftCopy*, a program that enables you to use the scanner as a colour photocopier. With this program, images that you scan in are automatically printed out to the printer of your choice, without you having to go through the palaver of setting up the scan.

At the time of writing, Agfa had also bundled the *OmniPage LE* optical character recognition (OCR) software with both scanners, but the *OmniPage* CD was not finished in time for release. You can obtain your copy of this application by posting or faxing an enclosed form to Agfa who will forward the CD on to you.

Both scanners come supplied with the same installer CD, but oddly, *Color It!* is not part of the StudioStar's installer, although if you want it you can simply copy it off the CD.

For the SnapScan, this software represents a good bundle considering the scanner's price, but for the cost of the StudioStar, you might have expected to get at least *Photoshop LE*. It seems a bit mean to offer the same meagre software bundle for a scanner that costs more than twice as much.

The documentation supplied with both scanners comes mostly on the installation CD in Adobe *Acrobat* format. This is electronic, and if you want the documentation in your hands, you have to print it out yourself. You either love or hate

Performance compared

We tested both the SnapScan and the StudioStar on a 200MHz Umax Pulsar, using *Adobe Photoshop* alongside the *FotoLook* plug-in. In all our tests we allocated 40Mb of the Pulsar's RAM to *Photoshop*.

To test the scanners' colour reproduction and speed we scanned in a five-inch by six-inch colour photograph and an A4 dye-sub colour proof. The proof was scanned in colour, greyscale and black-and-white (line art) formats, to give the best range of performance figures for all types of use.

All the scans were done at 300dpi and 100% size. We timed the tests from the moment the Scan button was clicked to the moment the image appeared in *Photoshop*. We then compared the test results with those of Umax's Vista S-12 scanner (86% in MACFORMAT 44), which is broadly comparable, specification-wise, to the StudioStar.

Speed

In terms of performance, the SnapScan was mediocre. Its speed was decidedly sluggish, scanning a full colour A4 page in one minute and 37 seconds. Compare this to the Umax Vista S-12, which took a mere 43 seconds to complete the same job.

The StudioStar was a bit faster, taking 70 seconds, but oddly it took far longer (64 seconds) to scan an A4 greyscale image than the SnapScan (47 seconds). These were both slower than the Vista S-12 (29 seconds).

Scanning speed in seconds

(The lower the figure, the faster the scan)

Scanner	Photo	A4 colour	A4 greyscale	Line art
Umax S-12 (benchmark)	16	42.5	29	16
Agfa SnapScan	47	97	47	34
Agfa StudioStar	36	70	64	31

Acrobat manuals, and we tend to fall in to the latter camp. How are you supposed to read them when something isn't working and your Mac won't start up, for example? Printing the scanner manual alone requires over 50 pages, and this doesn't include the reams of documentation for all the bundled software, which also comes in *Acrobat* format. A decent printed manual would have been much more helpful. However, the documentation is fairly comprehensive and offers step by step instructions on set-up and use. It is a drag to read though, and you'll probably give up once you've got through the basic installation instructions. As far as printed material goes, the only book supplied is a very short reference guide to scanning.

SnapScan

The SnapScan is the more basic of the two devices, and is a "personal" colour scanner aimed at the home and occasional user. It's a 24-bit flatbed scanner with an optical resolution of 300 x 600dpi, which can be interpolated up to 2,400dpi, and has a maximum scan area of 216 x 297mm. Speaking plainly, this means it is capable of recognising millions of colours and scanning at 300 dots per inch horizontally and 600 dots per inch vertically, over an area the same size as an A4 page. 300 x 600 is a fairly low resolution, and is really the minimum that's acceptable for a flatbed scanner these days. Interpolating the scan up to 2,400 x 2,400 gives you a much larger image, but with no more detail, and the scans tend to get blurred (interpolation adds extra pixels, based on the colour of the surrounding pixels).

The SnapScan is pretty compact at 530mm long, 375mm wide and 140mm high, and it weighs in at 7.5kg. The casing is standard computer-grey and wins no prizes for design innovation, but it is functional. A power switch and two LEDs (Power and Status) adorn the front, while the back has the business-end with 50-pin SCSI connector, 25-pin SCSI connector (you can use a 25-50 pin SCSI cable to daisy-chain the scanner to other devices), SCSI ID switch and connectors for the optional transparency adaptor and document feeder. A SCSI cable for connecting the scanner to your Mac is supplied, along with – oddly enough – both a European two-pin mains cable and a UK three-pin mains cable.

StudioStar

The StudioStar is the SnapScan's bigger brother, designed for the small office or design bureau. It's a 30-bit scanner (millions of colours), has an optical resolution of 600 x 1,200dpi, which can be interpolated up to 2,400 x 2,400dpi, and a maximum scan area of 211 x 355mm. The StudioStar's higher resolution and larger scanning area make it better suited to designers who need material scanned in but don't need the expense or quality of pre-press scanning.

A little bigger than the SnapScan at 545mm long, 386mm wide, and 143mm high, the StudioStar weighs in at 8kg, but comes in much the same style casing. A power button and three LEDs (Power, Status and Transparency adaptor) are positioned on the front of the case, while around the back is a 50-pin SCSI connector, 25-pin SCSI connector, SCSI ID selector and connection for document feeder and transparency adaptor. Oddly, the StudioStar does not have the dark grey base of the SnapScan – and its aesthetic appeal suffers for it.

At the end of the day...

We were disappointed by the SnapScan's lethargic scanning speed and poor image quality. Although it looks like an attractive bundle, you can get better packages for this price. It would also benefit from having proper printed documentation and scanning software that looks like it's designed to run on a Mac, not a PC.

The StudioStar is a better proposition. It produced accurate and sharp scans, albeit at a leisurely pace. In terms of image quality, it comes out tops over the competition (see our table below), but it loses out in other areas, particularly that of bundled software. Agfa could do more than just provide the basic bundle that comes with the SnapScan, particularly given that the StudioStar costs over twice as much. Like the SnapScan, it would also greatly benefit from the inclusion of printed documentation and scanning software with a more intuitive interface. **MF**

At more that twice the price of its stablemate, the Agfa StudioStar fails to impress when it comes to bundled software.

Agfa SnapScan

Rather average performance, with speed and image-quality not up to the standard that you would expect for this price.

Features	**68%**
Ease of use	**74%**
Documentation	**72%**
Value for money	**67%**
MF rating	**69%**

Agfa StudioStar

Superb image quality, but with a very limited software bundle for the price and a relatively poor turn of speed.

Features	**81%**
Ease of use	**74%**
Documentation	**72%**
Value for money	**80%**
MF rating	**78%**

There's more...

Transparency adaptors enable you to scan photographic slides and transparencies. These are available for both scanners, costing £288 for the SnapScan and £470 for the StudioStar.

...and more

Document feeders, used for the consecutive scanning of multiple items, are also available for the SnapScan and StudioStar. These cost £312 and £412.

An image from our benchmark scanner, the Umax S-12. While being far from pre-press quality, the S-12 offers a good comparison since it's around the same price point as the StudioStar and has similar specs.

The SnapScan failed to pick up many not-so-subtle colour variants in our test photograph, and the scan was extremely dark, appearing flat and somewhat fuzzy. Adjusting the image in *Photoshop* helped, but you can't replace the missing colours, and the colour reproduction was way off.

The StudioStar fared much better. It produced a well-balanced scan, picking up detail and subtle colour gradients that both the SnapScan and the Vista missed – the green petrol tank on the bike is a good example. Overall, the scans were reasonably sharp and the colour accuracy is impressive.

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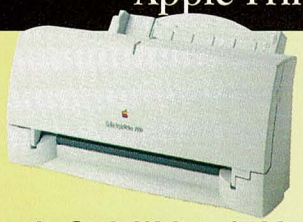

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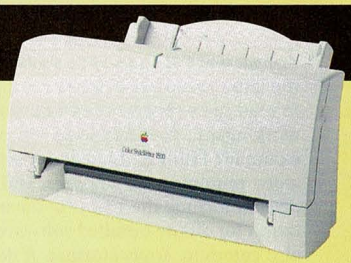

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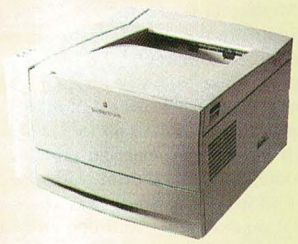

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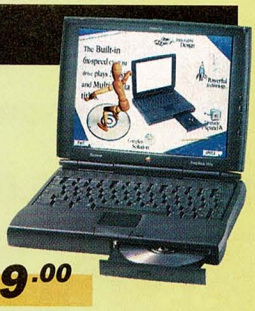

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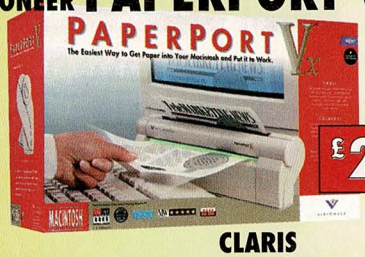

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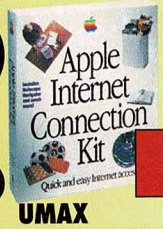

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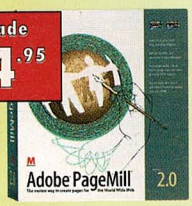

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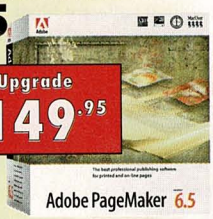

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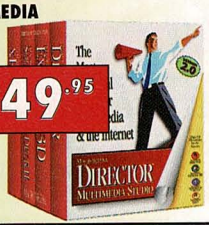

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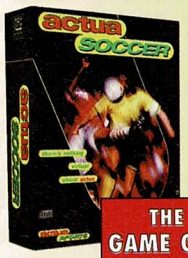

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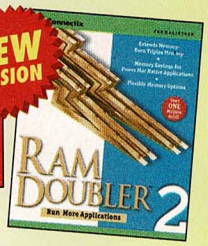

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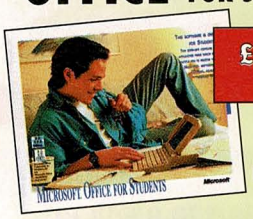

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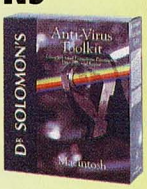

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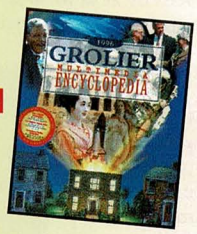

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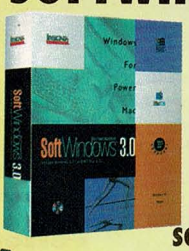

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Performa 5400/180

What better to go with your black hi-fi and TV than Apple's Performa 5400/180? Macs are back in black, and they're making a statement. Listen carefully...

It's certainly one of the sexiest Macs to come out of Apple so far, but is it a Skoda underneath that flash paint job?

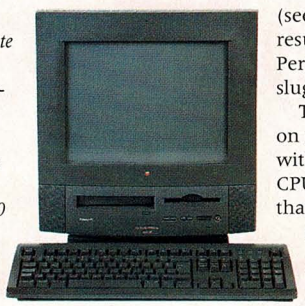
The Performa 5400/180 is not your average Mac. It's definitely a bit off-white in the colour department for a start, and it's not your average Mac inside, either. But let's talk about the colour first. Why black?

Apple doesn't want people to think of the Performa range as just computers, but as family entertainment systems – much like your TV, video and hi-fi. The idea is that the 5400 will sit happily in your living-room, becoming less daunting and more accessible to all. In keeping with this, Apple is playing down the 5400's impressive technical specs and marketing it simply as "The Family Macintosh", along with its stablemate, the (traditional grey) 5400/160.

The Performa 5400/180 is based on a 180MHz PowerPC 603e processor, and comes with built-in TV tuner, S-VHS and composite video input (for video recorders and cameras), 28.8Kbps fax modem, eight-speed CD-ROM drive, 7-inch PCI expansion slot, 16Mb of RAM (expandable to 128Mb), 1Mb of VRAM, 1.6Gb hard disk, built-in 15 inch multiple-sync monitor, keyboard (black) and mouse (also black).

Sadly, Apple hasn't improved the built-in monitor since the 5200 series, and it lets the machine down. It's flickery, fuzzy, and the colours aren't particularly accurate. The 5400/180 also lacks a Level 2 RAM cache, although there is a slot for one. A cache can improve speed by 20% to 30%.

The 5400 comes with an impressive bundle of software, including *VideoShop* for editing home movies, *AppleCom Lite* for getting on-line, *Apple Fax* for sending and receiving faxes, and *Apple Phone* for turning your Mac into an answering machine. As with all other Performas, you also get *ClarisWorks 4.0* and a bundle of multimedia CDs, including *The Best of European Soccer*, *The Ultimate Human Body*, *The Grolier Multimedia Encyclopedia*, children's titles *Sammy's Science House* and *Thinkin' Things 3*, plus a few games: *Power Pete*, 3D shoot-'em-up *Descent* and adventure game *Full Throttle*.



To top things off, you also get a CD with the System software on it, as well as a *Guided Tour* CD. The documentation is very good and includes both setup and troubleshooting procedures.

The 5400/180's 180MHz PowerPC 603e processor should give this Mac the kind of power you'd associate with a full blown PowerMac. To check, we carried out both a benchmark test (see below) and our standard real-world test suite (see margin note). The results are not too bad for a Performa, although a bit sluggish for 180MHz .

The 5400/180 did less well on the benchmark ratings, with a poorer showing in CPU and graphics power than you would expect given the specifications.

Overall, the Performa 5400/180 is certainly attractive. However, the processor is not upgradable, and there's only one 7-inch PCI slot. Two grand is a lot for a Mac with such limited upgradability (and therefore a limited life). If you can get one for £400 off list price, it'll be worth considering. **LINDSAY BRUCE**

Our tests

We added a 32Mb DIMM to give a total of 48Mb of RAM and allocated 40Mb of this RAM to *Photoshop*. We then tried a range of filters on a 20Mb test file. The 5400/180 got through a four-pixel Gaussian blur in 36 seconds, an RGB to CMYK conversion in 24.5 seconds, and a colour halftone filter in 161 seconds.

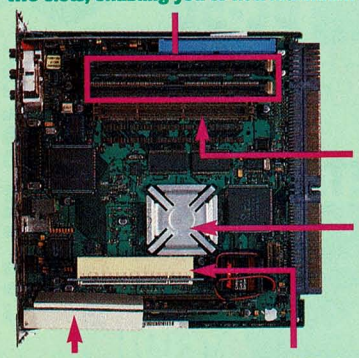
Performa 5400/180

Lots of built-in features, but it's far too expensive and can't be upgraded.

Features	90%
Ease of use	91%
Documentation	86%
Value for money	73%
MF rating	**81%**

Open the box

DIMM (Dual In-line Memory Module) slots. The 5400 has two slots, enabling you to fit a maximum of 128Mb of RAM.



Level 2 RAM cache slot. Sadly, supplied empty. A 256K L2 cache will cost you £130.

Processor. A 180MHz 603e PowerPC. Sadly, not upgradable.

Built-in 28.8Kbps fax modem. The 5400 comes with comms software pre-installed.

PCI slot. Just one, and it will only accept 7-inch cards, not 9- or 12-inch cards.

Benchmark test results

Mac model	CPU	FPU	Disk	Graphics
PowerMac 6100/60 (benchmark)	100	100	100	100
Performa 6200/75	100	103	137	90
Performa 5400/180	164	222	183	118

Ratings are expressed as a percentage relative to the benchmark system, which gets an arbitrary 100% rating for each test. The higher the percentage, the faster the machine. The Performa 6200 is included for comparison – it was a conventional "modular" Mac design using the same 603e chip, but at 75MHz.

PRICE	£998	ON SALE	Now	CONTACT	IMC on 01344 871344	WEB SITE	http://www.umax.com

Umax Apus 2000/166

Umax has released another series of Mac clones – not high-end towers, but desktop machines for the home and office. Can they compete with Apple's Performas?

Umax, best known as a scanner maker, was a latecomer to the Mac clone market, picking up the pieces of Radius's abortive attempt to woo professional buyers. So far, the Taiwanese company has done well, receiving much acclaim for its range of Pulsar Mac clones (see MACFORMAT 42 and 44). Now Umax has set its sights further down the scale, producing a series of Mac clones suitable for the home and office.

There are three machines in the Apus range: first is the 2000/166 (reviewed here), and beyond that is the 3000/200 and 3000/240. All are based on a PowerPC 603e chip, but at varying clock speeds (reflected in the model numbers).

The 2000/166 is the baby of the range, with its chip clocked at 166MHz. It also boasts an eight-speed CD-ROM drive, a 1.2Gb internal IDE hard drive, 16Mb of on-board RAM and a 256K Level 2 RAM cache. Outwardly, it's roughly briefcase-sized (405mm deep, 355mm wide and 90mm high) and it sports a grey plastic cover, although the structure is entirely of steel. On the back is the usual array of ports: microphone and headphone sockets, SCSI (for connecting CD drives and external disks), modem and printer ports, ADB keyboard port and Mac monitor connection. Oddly for an office machine, there is no Ethernet fast network port, and no VGA monitor port (a useful extra on the Pulsar range) either.

Bundled with the Apus is an extended keyboard and mouse, but no monitor and very little software. You get FWB's *CD-ROM Toolkit* for the CD drive and that's about it. The documentation is reasonable, but gets a bit technical in places. It does, however, include a decent troubleshooting section.

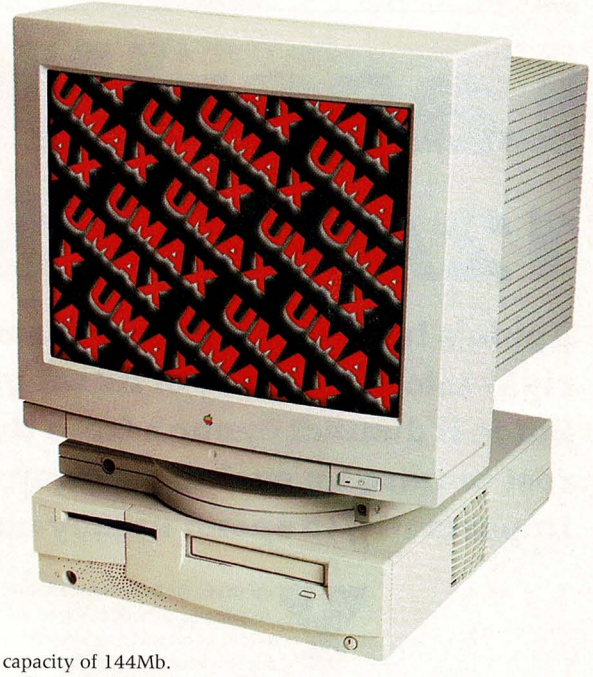
Getting the lid off involves undoing a thumbwheel screw and snapping two catches at the back. The processor is mounted on a daughterboard, so that at a later date you can simply swap it for a faster one. Unlike the large and unwieldy processor daughterboards found in the PCI PowerMacs and clones, this one is really dinky. It's mounted in a "zero-insertion-force" (ZIF) socket, and removing it is simply a case of lifting a small lever to loosen the connection pins and then lifting the board out. This reduces the risk of damaging the connections and makes upgrading amazingly easy.

There are two DIMM (Dual In-line Memory Module) slots for adding RAM. The Apus can accommodate two 64Mb DIMMs in addition to its 16Mb of on-board RAM, giving it a total memory capacity of 144Mb.

Underneath the floppy drive is the Level 2 RAM cache, and this is where the design falls down. If you decide to upgrade the cache, it's going to involve taking the floppy drive out. A needless inconvenience – and the space could have been better used for a spare drive bay, which the Apus doesn't have.

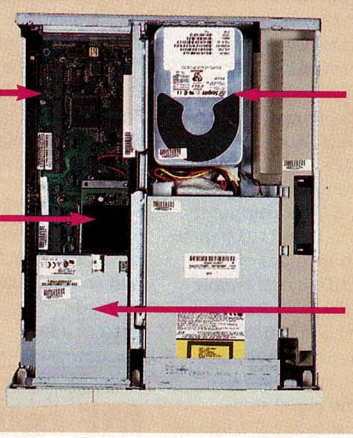
The Apus was speedy. We fitted a 32Mb DIMM to give it a total of 48Mb of RAM, allocated *Photoshop* 40Mb of this, and carried out some processor-intensive filters on a 20Mb *Photoshop* file. The Apus got through a four-pixel Gaussian blur in 35 seconds, an RGB to CMYK conversion in 22 seconds and a colour halftone filter in 110 seconds – all faster than the nominally-faster 180MHz Performa 5400/180 (see opposite). It did even better on the *MacBench* benchmark tests, where it was consistently faster than the 5400.

Overall, we were very impressed with the Apus. It's not ideal as a first home machine since it lacks bundled software, a monitor and the 5400/180's TV tuner and built-in modem. But its performance is great, and it's a fine machine for cost-conscious businesses. **LINDSAY BRUCE**



Not the most awe inspiring case design we've ever seen on a Mac clone, but then it's what's on the inside that really counts...

Anatomy of the Apus



DIMM slots. As well as the 16Mb of on-board RAM, they mean you can expand the total RAM to 144Mb.

Processor daughterboard. Mounted in a clever socket, the processor can be easily upgraded at a later date.

1.2Gb internal IDE hard drive. Like Performas, the Apus range uses a PC-type IDE hard drive instead of SCSI. This leaves seven free SCSI IDs available for external devices.

Hidden underneath the floppy drive is a Level 2 RAM cache slot, which comes with a 256K cache card already fitted.

Umax Apus 2000/166

At this price, its speed and upgradability make the Apus a sure-fire winner.

Features	85%
Ease of use	88%
Documentation	83%
Value for money	94%

MF rating 89%

The range

If you're after something with a bit more oomph, the Umax Apus 3000 range offers Mac clones with 200MHz and 240MHz 603e processors. The Apus 3000/200 is £1,527, and the 3000/240 is £1,762. For power users, Umax produces the Pulsar range. For more details, see MACFORMAT 42 and 44.

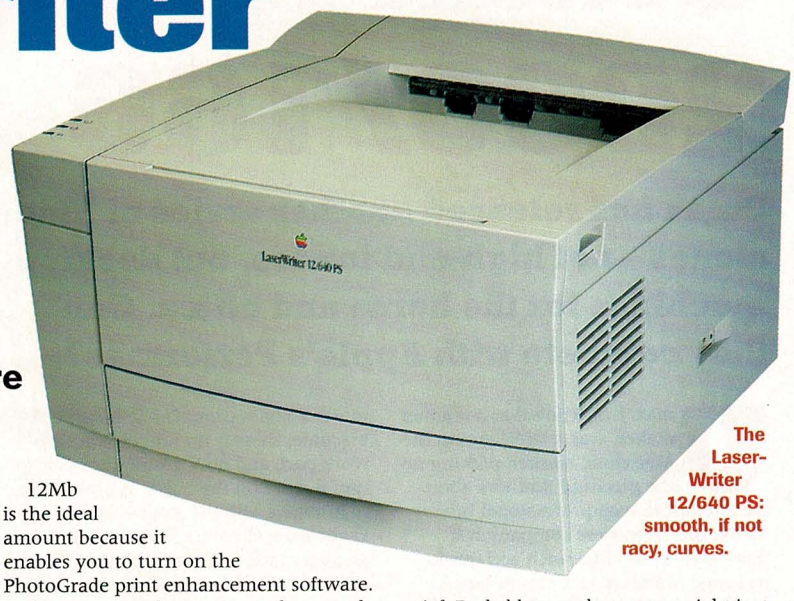
Benchmark results

Mac model	CPU	FPU	Disk	Graphics
PowerMac 6100/60	100	100	100	100
Performa 5400/180	164	222	183	118
Umax Apus 2000/166	262	252	184	181

PRICE	£1,386.50	ON SALE	Now	CONTACT	Apple Computer on 0800 127753	WEB SITE	http://www.apple.com
MAC	Any	POWERMAC	Any	REQUIRES	System: 7.1		

LaserWriter 12/640 PS

Apple's latest laser printer slots right into the middle of its range, but is it distinct enough from the rest to raise an eyebrow – or, more importantly, to spend money on?



The LaserWriter 12/640 PS: smooth, if not racy, curves.

You may not have noticed, but Apple recently developed a really good naming system for its printers. Lasers are simply named after their speed in pages per minute, followed by their resolution, followed by a 'PS' if they're PostScript models. This means you can immediately tell what you're getting when you buy, say, a 16/600 PS.

So it's with some confusion that you approach the new 12/640 PS. Does it have a very non-standard resolution of 640 dpi? Or is it so named because Apple already has a colour laser by the name of 12/600? Never mind. What you actually get is a 12ppm, 600dpi black-and-white laser printer, which produces good quality output like all those other 600dpi printers you can buy. But then it does use the popular Xerox engine found in many other makes of printer. In this market, the things that differentiate printers are instead those little extras.

For a start, the styling is, well, average. The gently rounded sides have a faintly Star Trek feel, and at 24cm high x 40cm wide x 42cm deep, it's much the same size as most lasers. It's not ugly enough to offend anyone, but it isn't beautiful enough to seem cleverer than it really is.

It comes with a paltry 4Mb of RAM, which will be inadequate for most serious users. With the price of RAM at an all-time low, Apple is handicapping its printers (and computers) for the sake of a few tens of pounds.

If you choose to upgrade the RAM yourself, all you'll need to do is remove two screws, then pull off the side casing. It's simple enough for anyone to do in five seconds, but not so simple that users will accidentally open the panel looking for a paper jam.

Inside you'll be met by two 72-pin SIMM slots, one of which will be filled by a 4Mb SIMM. You can pop another 4Mb or 8Mb SIMM into the spare slot, to give up to 12Mb of RAM. Upgrading past 12Mb involves throwing away your 4Mb SIMM and installing two larger SIMMs. 12Mb is the ideal amount because it enables you to turn on the PhotoGrade print enhancement software. Unfortunately, whenever you do upgrade the RAM, you need to re-visit every connected Mac and run the printer setup process from the Chooser again. Very bad feature, Apple.

In our speed tests, the 12/640 had no problem printing a single page of text at 12 pages per minute. In fact, it didn't slow up when we printed differing pages, although having 12Mb of RAM installed did help. Printing graphics will slow it down, depending on their complexity, but printing speeds still proved impressive. Unless you need to print hundreds of pages, you probably won't notice that it's slower than a 16ppm printer.

Fitting in

To connect your computer to the printer you have three ports. The LocalTalk port is fine for light use or small networks, and a parallel port enables you to connect a PC. (Both Mac and Windows 3.1/95 software is provided, and you can connect to both a Mac and a PC at the same time if you want.) Most users will want to use Ethernet, for which there's an AAUI port, the same as on the back of all Ethernet Macs. This requires a transceiver, which is not provided. It's a shame not to also see the industry standard RJ45 Ethernet port which Apple now provides on its Macs. But the Ethernet port does support IPX and TCP, enabling printing on complex networks from Novell servers and Unix computers.

One notable omission is an LCD panel, which Hewlett Packard includes on its printers in this class. LCD panels enable you to locally change the settings, fiddle with the configuration, and cancel printing. Apple's argument may be that this is more elegantly done from the provided software, and having no panel stops meddlesome users causing administrators grief. Probably true, but many might just see it as a cost-cutting exercise.

Our final hurdle for the 12/640 was the *US Letter* test. This involves printing a document which has been set up as "US Letter" size in the **Page Setup** dialogue box. What a printer should do is print it out the best it can on A4, or at least reject it. What many Apple printers do, the 16/600 included, is hang. With no reset button, the only solution is to switch the printer off. The 12/640 passes the test, and even prints pages set for "US Legal".

So is it worth the street price of £1,250? There's not much wrong with this printer, and if you want a fast, high-quality printer it won't let you down. Inadequate RAM and no RJ45 Ethernet port are the main complaints, although the 250-sheet paper tray isn't very generous either. At least you can buy an additional 500-sheet tray for £329.

For the same price you can get the duplex add-on, for printing on both sides of the paper. If this appeals to you, your best bet is to buy the bundle that gives you the printer, duplex, 12Mb of RAM, plus the extra 500-sheet paper tray for a very reasonable RRP of £1,727 (although it seems to be *more* in the adverts...).

Whatever the price, the duplex option will interest only a specialist minority. For the rest of us, the 12/640 PS will be an effective, reliable, unobtrusive workhorse in the corner. **DEREK SMITH**

PostScript

A "page description" language. Printing to non-PostScript printers, your Mac uses its own QuickDraw imaging system to tell the printer what to print. Printing to a PostScript printer, it sends a description of the document, which the printer must store and decode first. Hence a PostScript printer needs a processor and RAM of its own – but output quality can be much higher.

PhotoGrade

A RAM-hungry Apple technology that increases the number of levels of grey its printers can produce, thus improving the appearance of graphics. FinePrint is an equivalent smoothing technology designed to make text look better.

LaserWriter 12/640 PS

A perfectly adequate printer, slightly overpriced, but ideal for those who feel safest with an Apple badge on their hardware.

Features	70%
Ease of use	90%
Documentation	91%
Value for Money	78%
MF rating	**80%**

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Into the Web

More people are using the World Wide Web every day, but how easy is it to weave part of it yourself? Bill Bow looks at the latest graphical HTML editors.

Reviewed this issue

BBEdit 4
£112, Full Moon Software

golive Pro 1.1
US$99 (£TBC), CGS Computerbild

Home Page 1.0
£81, Claris

HoTMetaL Pro 3
£116, SoftQuad

PageMill 2.0
£116, Adobe

ON THE CD

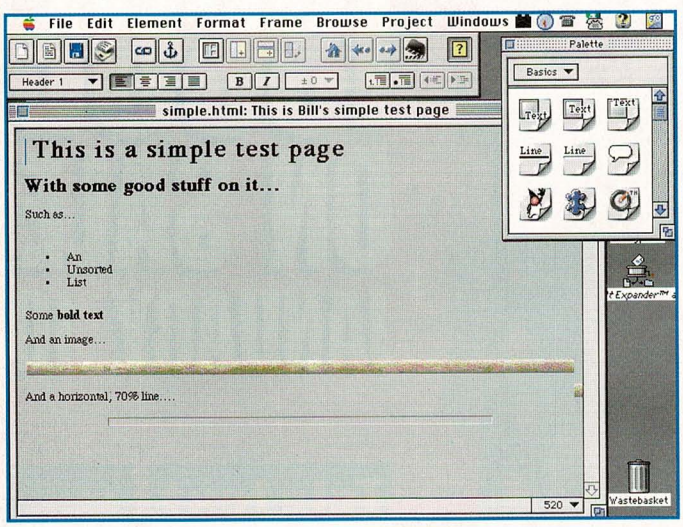
Working demos of *Home Page*, *golive* and *BBEdit*.

Once upon a time, the Internet was the preserve of the techie few. Only those who knew the dark secrets of systems such as Gopher, Telnet and Usenet could use it. Then, a bloke from Poole called Tim had an idea. He decided that there was an easier way to store and present information on the Internet. It would allow users to move from document to document as easily as clicking the mouse button. Tim's full name was Tim Berners-Lee and the idea he had was the World Wide Web.

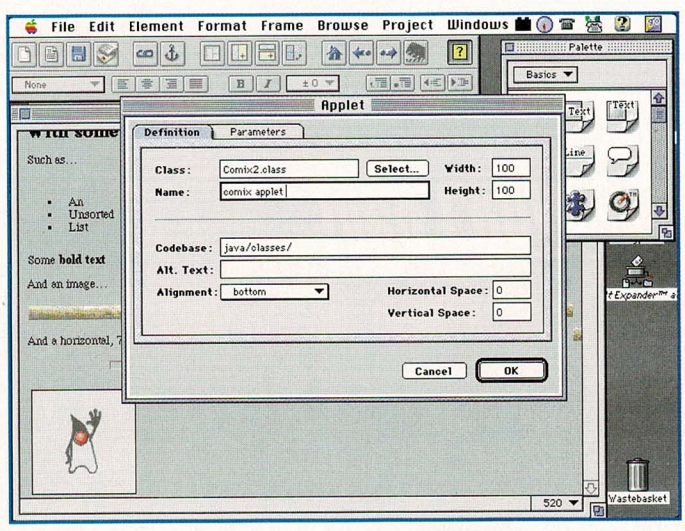
The World Wide Web (or Web as it's more commonly called) revolutionised the Internet. Instead of having to learn lots of arcane commands and odd program names, users could simply click their way around the Internet. At the heart of the Web is HyperText Markup Language, the code used to program Web pages. Although HTML is nowhere near as complex as a conventional programming language, it is still fairly technical – which meant that before you could start producing Web pages you had to learn the intricacies of <IMG> tags (which put images on a page), and the fine art of producing un-ordered lists.

However, the trend towards making things less techie continues, with the recent development of graphical HTML editors. These programs enable you to produce Web pages without ever having to do a line of HTML code. Just as DTP programs led to opportunities to produce magazines without having to go anywhere near a PostScript code, graphical HTML editors now enable you to produce your own Web pages without having to learn the language.

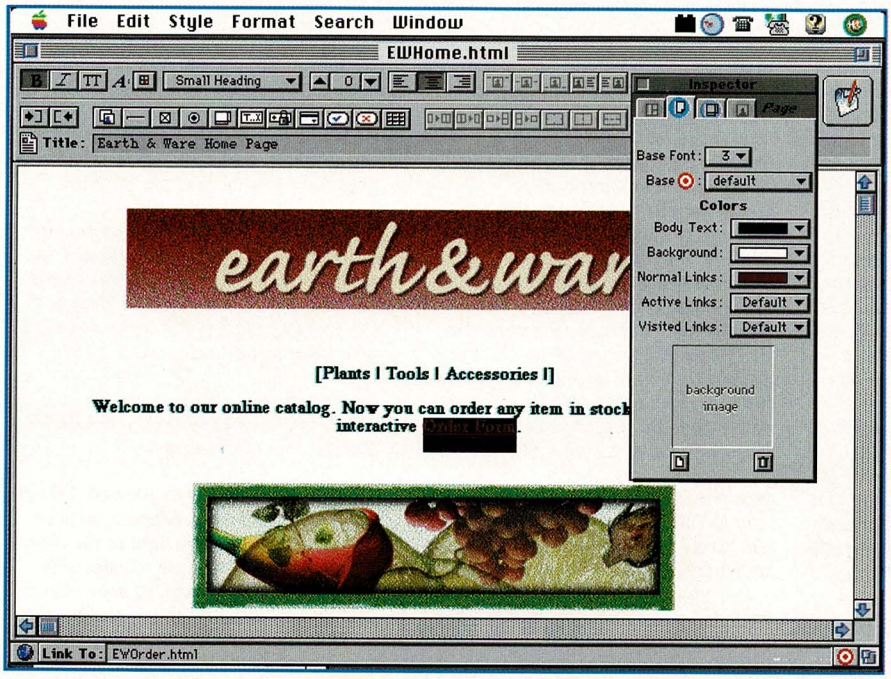
All of the programs tested here (with the exception of *BBEdit*) allow the creation of Web pages with no HTML programming. In effect, they provide a WYSIWYG (What You See Is What You Get) way of producing Web pages. How suitable are they for producing Web pages, however, and is the era of the HTML programmer over? Do these



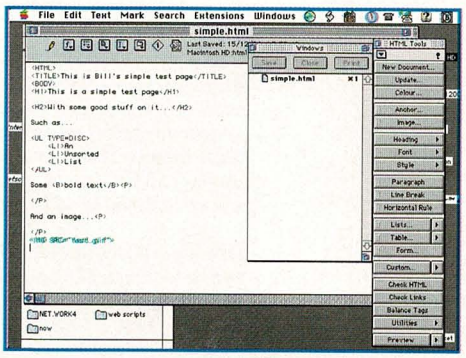
Golive **has a clean, uncluttered interface which makes it easy to find the tools you want and easy to use them.**



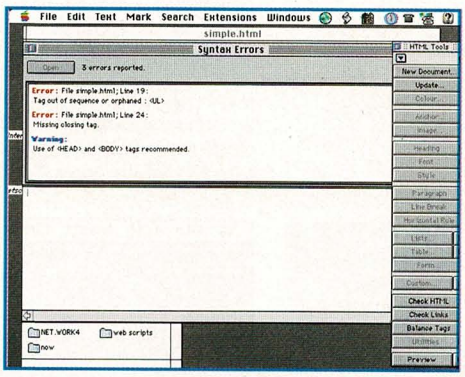
Golive **can also insert elements such as Java applets, plug-in files and QuickTime animations without you having to write the HTML code manually.**



PageMill version 2 has much the same interface as previous versions, with a floating toolbar.



BBEdit has a rather sparse interface, but in practice it is surprisingly easy to use.



There are plenty of new features in version 4 of *BBEdit*, including this rather useful HTML checker, which checks your pages for HTML errors.

programs provide a way for anybody who can use a mouse to produce groovy Web pages?

Weaving the web

At the very basic level, creating Web pages is simply about combining text with graphics. All of the programs we tested are designed to do this, but they do take very different approaches.

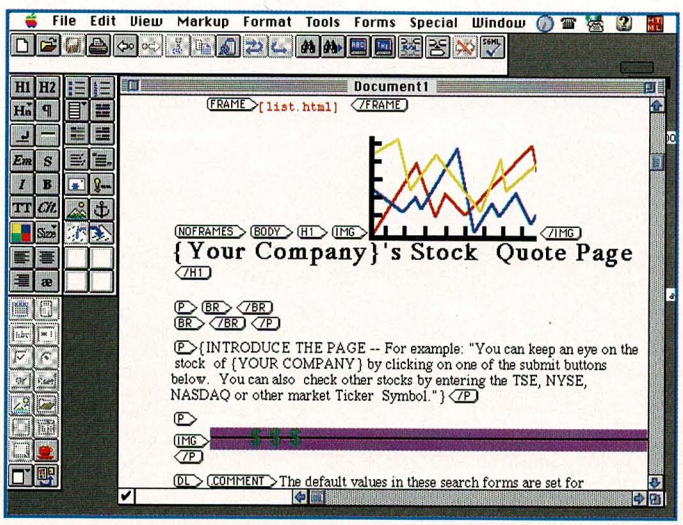
The one that really stands out in terms of approach is *BBEdit*. This is basically nothing more than a glorified text editor. In its most recent incarnation, it's a very complex and very powerful text editor – but that's really all it is. The other programs provide a graphical approach, but *BBEdit* is for you if you like to get into the guts of things and fiddle with them until you can work out why they work.

If you're more interested in getting the job done without having to learn too much about the technicalities, all the other programs provide tools of various types and levels of complexity to achieve this.

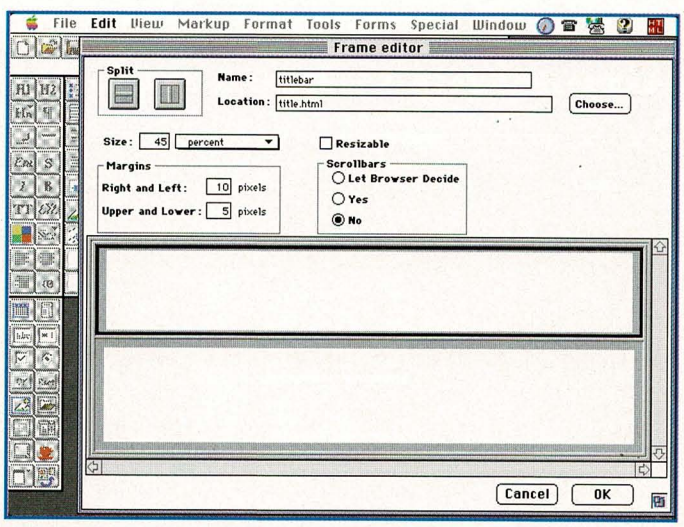
All of the programs have a broadly similar user interface – the Web page is shown in a window, surrounded by toolbars which provide the way of formatting the text. For instance, if you want some text to be a headline, you select it and bang on the **Headline** button (or select it from the menu). The program then deals with the business of inserting the tags which turn it into a headline – you don't even have to know what the tags are.

All of the programs enable you to import text files for use on your page, and some (such as *HoTMetaL Pro*) even provide other tools more usually found in word processors, such as spell-checkers. *HoTMetaL* even provides a thesaurus, so if you find the language of your Web pages getting a bit tired, you can look for some more florid discourse to perk them up.

However, this is where the similarities end. Some of the programs (such as ➤


File Edit View Markup Format Tools Forms Special Window
Document1
FRAME [list.html] /FRAME
NOFRAMES BODY H1 IMG /IMG
{Your Company}'s Stock Quote Page
/H1
P BR /BR
BR /BR /P
P {INTRODUCE THE PAGE -- For example: "You can keep an eye on the stock of {YOUR COMPANY} by clicking on one of the submit buttons below. You can also check other stocks by entering the TSE, NYSE, NASDAQ or other market Ticker Symbol."} /P
P
IMG
/P
DL COMMENT The default values in these search forms are set for

The new version of *HoTMetaL Pro* has roughly the same interface as previous versions. (And it must win some kind of prize for its double-pun name!)



Also included in *HoTMetaL Pro* is a rather good frames editor, which can be used to build a page that uses frames graphically.

Jargon Busters

Animated GIFs – GIF files can contain several frames which can be played in sequence, giving an animated image. Most modern Web browsers support these, so it provides a good way to add a small animation to a page.

Frames – A new addition to the HTML standard which allows Web pages to be broken down into different parts, each of which is treated as a separate Web page. It's often used to keep the main contents list constantly visible in one frame, while you flick between pages held within another frame. The drawback is that only a frame-enabled browser like *Netscape 2.0* can register the frames.

HTML – HyperText Markup Language is the language behind Web pages. As the name suggests, text is marked up by adding tags to it; these tags then format the text, adding images and the like. For example:

<B> My Home Page </B>

would appear to someone using a browser to view the Web page as

My Home Page

because <B> represents bold text and </B> means "bold text off". It's just like the style commands inserted in text by word processors or DTP programs. Those are normally invisible, but you can see them if, for example, you export the text from a *QuarkXPress* page with its tags (select **Save Text** in the **File** menu and choose **XPress Tags** from the pop-up format menu), then view the text in *SimpleText*.

HTTP – HyperText Transfer Protocol is the standard that defines how Web pages are sent across the Internet.

Java – A relatively new programming language which enables programs to run on any machine which supports it. The same code will run on a Mac or a PC, as long as it is running a browser which supports Java.

Java applets – The Java programs which are downloaded from the Web site and run by the browser.

Home Page and *golive)* do their best to hide the technical stuff (the HTML tags which create the formatted pages) by giving you a preview of the pages as they will appear on the screen. Others (particularly *HoTMetaL)* take the approach that you actually want to know which tags are where, but don't want to have to type the nasty things in yourself. Which approach you favour depends on personal preference – the sight of the number of tags that compose a reasonably complex page is enough to scare even the sanest, but some people thrive on it.

With programs like *HoTMetaL*, the pages produced are checked in the actual Web browser program (typically *Netscape)*. This means you can be pretty sure that you are actually going to get what you see when you put it on a Web site and people start looking at it.

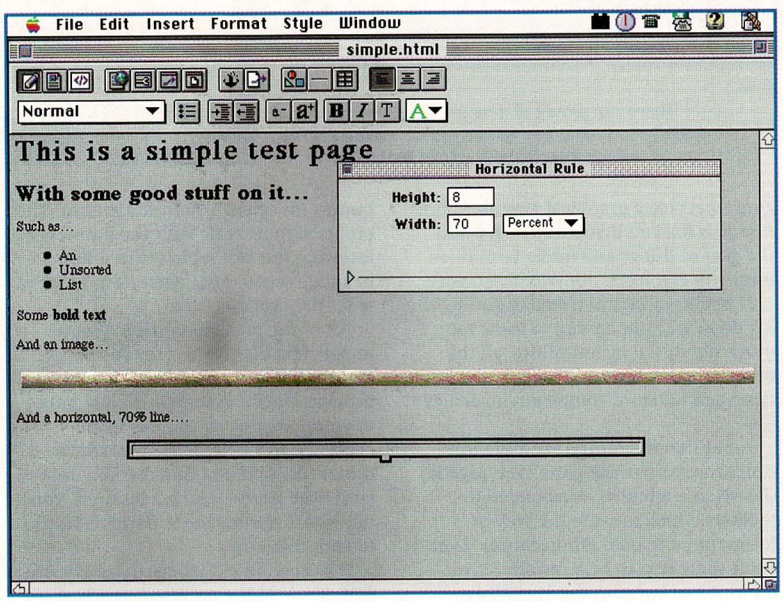
This can be a problem with the programs that take a WYSIWYG (What You See Is What You Get) approach – the page may not actually appear in the browser in the same way as it appears on screen in the program.

This is one of the unfortunate facts of Web pages – standards on the Internet aren't as standard as you might think. As the HTML language is constantly being developed, some browsers may support newer parts while other browsers may not. That's why it's a good idea to test pages out in several different browsers before putting them on-line.

All of the programs come with some sample files, but *HoTMetaL* goes one step further, with several hundred templates for Web pages, including pages designed

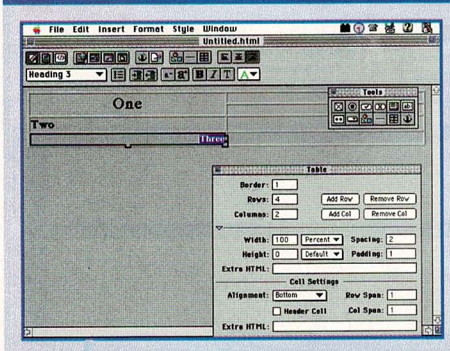
Shockwave

Macromedia's system enables you to create interactive multimedia productions to place directly within a Web page. You'll need access to Macromedia software like *Director* or *FreeHand* to make these; no HTML editor is capable of the job.

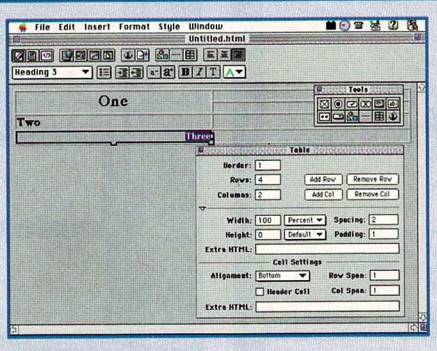


The interface for *Claris HomePage* is pretty simple, but it very helpfully leaves most of the frequently used tools in easy reach.

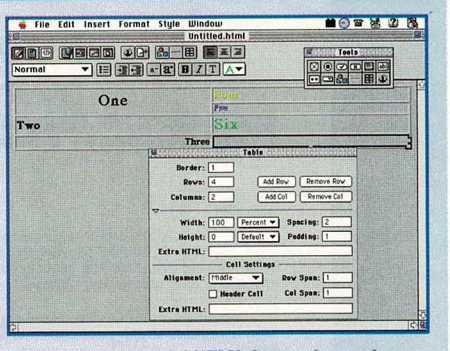
Creating tables in Claris Home Page



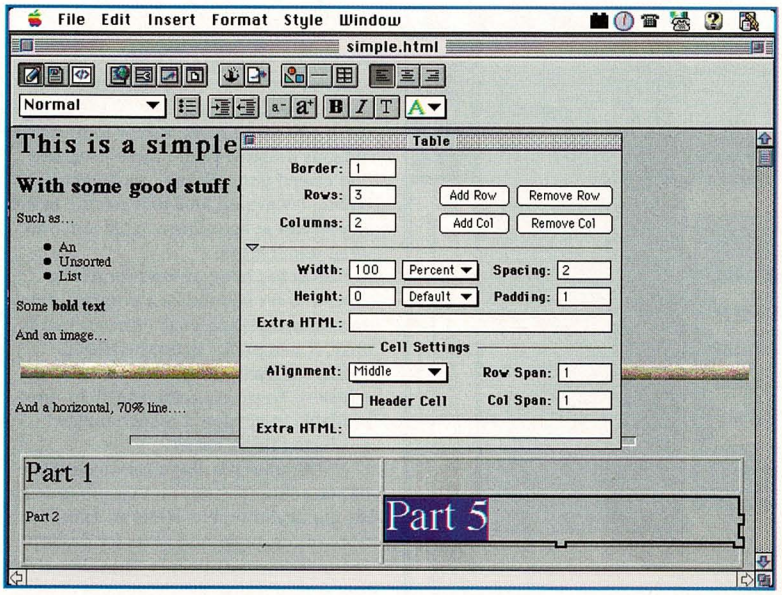
1 Creating tables in *Claris Home Page* is extremely easy: simply click on the Tables button and enter the details of the table that you want to set up.



2 The data for each of the cells of the table can then be entered directly into the table.



3 All of the normal HTML formatting codes can be applied to the data in the table, including headers and colours.



***Claris HomePage* has full support for tables, as well as other recent HTML developments like frames and inserting Java applets into pages.**

Home Page 2.0

Claris announced details of the successor to its *Home Page* program as MACFORMAT was going to press. *Home Page 2.0* should be available now at around the same price as version 1.0 (£81). If you own a registered version of *Home Page 1.0*, you'll be able to download a free upgrade to version 2 from Claris's Web site at http://www.claris.com/

New features in *Claris Home Page 2.0* include:

- **Image map tools: image maps are large pictures where clicking on different areas will link you to different pages, based on the co-ordinates of your mouse over the picture as you click it.**
- **Easy table creation: you can create a basic table set-up in any word processor using tabs, then simply drag-and-drop it onto your Web page, where *Home Page* will automatically convert into a table. Table design is also made easier, because you can vary the width of columns and the height of rows visually.**
- **Spell checking.**
- **The ability to include QuickTime movies on your page.**
- **Site publishing features: *Home Page 2.0* will check all the pages on your site and eliminate any unnecessary duplications, saving valuable disk space.**

Contact Claris on 0181 756 0101 for more details.

for business, personal and Intranet use. These could easily form the basis for a completely new page – why re-invent the wheel if somebody has already done the hard work for you?

All of the programs (with the exception of *BBEdit)* also come with a selection of clip-art for use on Web pages. This is usually in the form of what's known as page furniture – arrows, lines, borders and the like. However, once again *HoTMetaL* goes further than the rest, with around 20Mb of clip-art, including *Shockwave* files, audio clips and even a couple of video files. Some of these are only useful for the tutorials, but others would probably prove themselves to be genuinely useful when creating Web pages.

However, there is more to most modern Web pages than just text and images – many of them contain animation, forms and other ways of presenting information. One of the most common tricks is animated GIFs, graphic files which contain several different frames, giving animations on screen. These are widely used on Web sites because most browsers can show them without having to install any extra software. All of the programs in this round-up support animated GIFs, although only *PageMill* could actually show them on the page. The rest relied on the additional browser to show the animation.

Other techniques which are often used include forms, which visitors can fill in and submit to you over the Web. All the programs have varying levels of support for these. *BBEdit's* support is really nothing more than a set of tools for automatically creating the elements of forms (such as the buttons, text areas and similar), while other programs (such as *PageMill* and *Home Page)* have powerful sets of tools for creating the entire form.

However, none of the programs is really designed to deal with the other aspect of forms – the CGI script that runs on the Web server and processes the data in the form. They all enable you to specify the name of the script and the various types of data that will be passed to it – but you'll either have to use an existing script, modify an existing one or write a new one. To be honest, none of these are exactly tasks for the beginner.

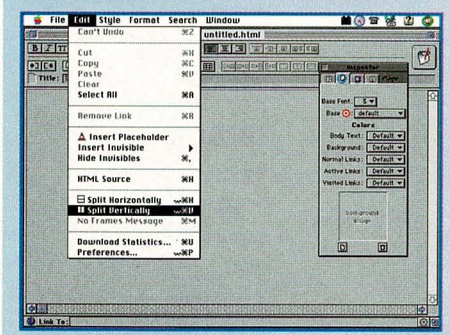
For a really complex site, what's required is to have a program that will easily cope with more complex techniques such as frames. Sites that use frames can quickly become very complex to work with, as each of the frames has its own HTML file. The only program which doesn't have some sort of frames support is *BBEdit* – all of the others have various levels of support for frames. The outstanding program in this area, though, is *PageMill* – the frames support in this program is excellent, and makes light work of what can otherwise be a complex and confusing operation.

However, none of the programs has a facility for producing framed and non-framed versions of pages in one. Most of them automatically put a message in the HTML code to users of the pages who don't have a frames-capable browser – but none of them will create a non-framed version of the page. If you want this, you'll have to insert the code manually, which is a real pain if you want to

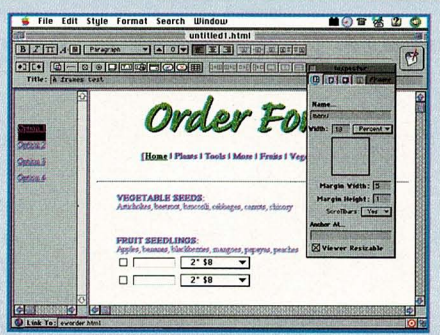
CGI

CGI stands for Common Gateway Interface, a standard for writing scripts to be run on a Web server.

Creating frames in PageMill

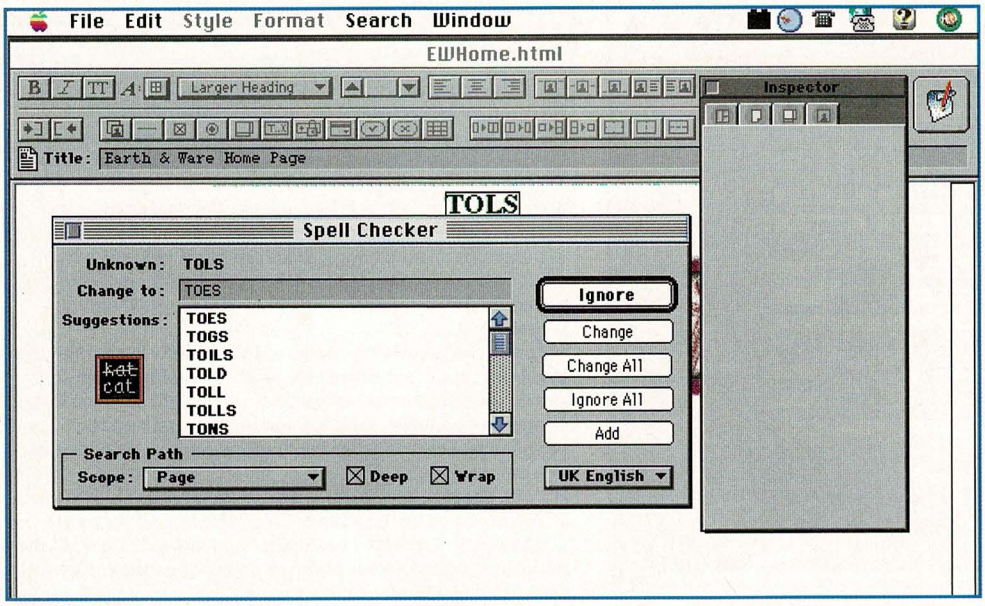


1 Creating frames in PageMill is very easy – you simply split the page using the menu option and it creates the frames for you.



2 HTML files for each frame can then be made by simply creating the pages or importing HTML code into the separate frames.

3 Creating links from one frame to another is done by selecting the relevant frame from a drop-down menu.



***PageMill* also includes a spell-checker and numerous other useful tools, guaranteed to make your life easier.**

produce versions of your pages which can be used by both frames-capable and non-frames-capable browsers.

Most of the programs have some level of support for inserting elements such as animations and Java applets, but the best are *PageMill* and *golive*. Both of these have extensive support for such elements, with simple ways of passing parameters to applets or setting up the size of the window for the animation. *Golive* in particular has excellent support for inserting optional programs which require *Netscape* plug-ins, making it easy to set up different types of content on pages.

There are programs available which are more geared towards managing sites, but none of the programs covered in this feature is really suitable for managing large sites – they are geared towards dealing with individual pages. If you are dealing with a lot of pages, you should consider a program such as *SiteMill*, a £290 extended version of *PageMill*.

The verdict

Long-time HTML hackers will be pleasantly surprised by how far HTML editors have come along. However, none of these programs enables you to do some of the really state-of-the-art stuff you'll see on Web pages produced by people who do it for a living. These rely on cutting-edge tools, which mainly involve writing the code yourself. And none of the tools tested here includes support for the really new technologies such as cascading style sheets. Don't expect any of these tools to turn you into a stunning Web designer overnight, but they will enable you to produce decent Web pages without the fuss.

However, there are things that you should watch out for. Like DTP programs, these editors do make it easy to produce hideous designs. While these programs don't need you to know much about HTML, it's a good idea to learn the basics so you can at least know what will and what won't work.

BBEdit has been around for a long time, and it's still the best program if you don't mind getting your (virtual) hands dirty. If you prefer to do the HTML coding yourself, then *BBEdit* is the best solution. There are some excellent tools available in version 4, which makes producing pages easier.

HoTMetaL Pro is also a serious user's HTML editor: it relies on tags too much for the beginner, but offers an excellent store of resources and ideas for designs.

However, most people don't like doing that sort of thing: the thought of typing in your own <IMG> tags is enough to bring some people out in a cold sweat. With the new generation of programs, however, there's no need to dab your brow any longer.

Golive is certainly worth condering: some of its ideas are quirky, but it disguises the technical aspects of HTML very well.

The two main contenders for the top spot, though, are Adobe's *PageMill* and Claris's *Home Page*. Frankly, there isn't an awful lot to choose between them: each has its own strengths and weaknesses. *PageMill* supports some things that *Home Page* doesn't (so far), such as client-side image maps and better support for multimedia elements. However, *Home Page* is a bit easier to use and would probably be better suited for you if you're an absolute beginner. **MF**

The verdict on Web page creators

	BBEdit 4	golive Pro 1.1	Home Page 1.0	HoTMetaL Pro 3	PageMill 2.0
Contact	Full Moon Software	CGS Computerbild	Claris	SoftQuad	Adobe
Telephone	01628 660242	0181 679 7307	0181 756 0101	0181 387 4110	0181 606 4000
Web	http://www.barebones.com/	http://www.golive.com/	http://www.claris.com/	http:/www.softquad.com/	http://www.adobe.com
Price	£112	(US$99; UK price TBC)	£81	£116	£116
Mac					
Processor	68000	68000	68020	68030	68020
RAM	700K free RAM	4Mb free RAM	8Mb	8Mb	4Mb free RAM
PowerMac					
Processor	Any	Any	Any	Any	Any
RAM	2Mb free RAM	5Mb free RAM	8Mb	8Mb	4Mb free RAM
System	7.0	7.5	7.1	7.0	7.1
HD space	–	–	6Mb	20Mb	10Mb
Screen	640 x 480	640 x 480	640 x 480	640 x 480	640 x 480
Colours	256	256	256	256	256
Requires	CD-ROM recommended				CD-ROM recommended
Verdict	Definitely not for beginners, but very powerful in an expert's hands	A good balance of simplicity and some very powerful tools	MF Best on Test: Good for beginners but with room to grow	More help and publishing resources than the others, but not for beginners	A powerful, easy-to-use program with excellent support for frames
MF rating	85%	75%	Mac Format Classic 91%	80%	Mac Format Classic 90%

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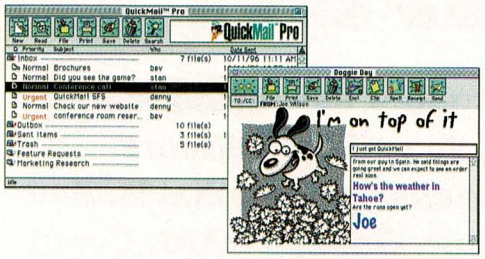

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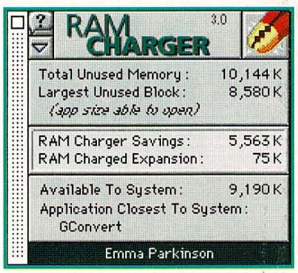
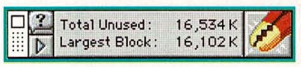
RAM Charger 3.0

No matter how much you've got, you still want more. Gooseberry fool, that is. And money. Oh, and RAM. Could this little utility be the answer?


RAM CHARGER 3.0
Total Unused Memory : 10,144K
Largest Unused Block : 8,580K
(app size able to open)
RAM Charger Savings : 5,563K
RAM Charged Expansion : 75K
Available To System : 9,190K
Application Closest To System :
GConvert
Emma Parkinson

***RAM Charger's* Heads-up display confirms that it has saved over 5Mb of RAM. It also tells you how much memory is available, and which application to quit first if you need more.**



You can leave the Heads-up window open all the time, but minimised into this small window, which gives the basic information you need. *RAM Charger's* settings are handled by a separate application, which keeps the RAM it uses itself to a bare minimum.

Same old story. No matter how much memory you've got, it's never enough. The more you install, the more the next version of the System demands and the more gets gobbled up by your next software update.

What makes it worse is that the Mac isn't terribly efficient about how it handles memory. It doesn't give it to applications as and when they need it, but gives them as much memory as they're expected to need in one big, continuous chunk when they launch. This memory is then tied up and unavailable for anything else until that application quits.

It gets worse. When you first start up your Mac, its free memory is in a single, large chunk. But as you open and close applications, it breaks up into smaller fragments. How? When you launch application one, it takes a chunk out of the "start" of your memory. If you then launch application two, it takes a chunk out of the "middle". If you then quit application one to get its memory back, application two stays in the "middle", breaking your memory up into two smaller chunks. This means that while you might have, say, 10Mb of RAM free, it might be in two 5Mb chunks, and this restricts the size of applications you can launch. This phenomenon is called memory fragmentation – and the only solution is to quit all applications and launch the ones you need all over again.

RAM Charger offers an alternative. It does two important things. First, it gets your applications to launch using smaller, "relocatable" blocks. *RAM Charger* can move these blocks around to concentrate your remaining free memory in a single, large chunk. Result: reduced memory fragmentation, without the frustration of being unable to launch applications even though you should have more than enough RAM to be able to do so.

Second, *RAM Charger* persuades applications to take only the RAM they need right now, instead of the much larger amount normally needed to allow for lots of open documents, complex operations and so on. Most running applications have "spare" RAM that they've been allocated but aren't using, and *RAM Charger* gives you this back.

So what happens when applications need this extra memory? *RAM Charger* lets them have it straight away, no problem – and totally transparently, so you don't even know it's happened.

The end result is much reduced memory fragmentation, and reduced memory usage all round. Sound too good to be true? There's still more. *RAM Charger* also increases your Mac's general reliability. This is because many unexpected errors and memory problems are due to the Mac running out of RAM for its System software. *RAM Charger* averts this by allocating the System software a RAM "buffer" to allow for expansion. It can also warn you when the System is getting perilously close to running out of memory, giving you time to close windows and applications – it tells you which application is closest in RAM to the System, too, so you don't have to guess which one to quit.

The good news continues. If you currently use Virtual Memory or memory-increasing programs like *RAM Doubler* – carry on. *RAM Charger* works on a different principle entirely and is fully compatible with these applications. But, as the publisher points out, with *RAM Charger* installed you might not need *RAM Doubler* or Virtual Memory anyway!

In our tests, *RAM Charger* seemed to work exactly as claimed. We deliberately fragmented our memory by launching and quitting applications, then checked memory usage and "Largest Unused Block" to discover massive improvements in both free RAM and largest block size.

The only fly in the ointment is the documentation. From the start it strives to be friendly and explain memory management in simple terms. For the most part it succeeds, but it takes a fair bit of concentration to work out what the figures in the Heads-up window mean.

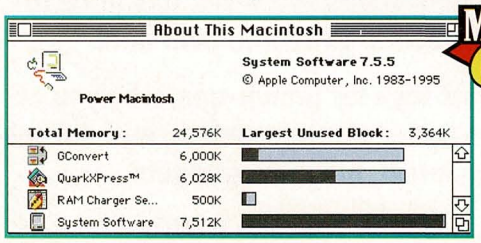
But apart from that, it's great. *RAM Charger* is simple to install and you don't even know it's working. "Difficult" applications can have their settings optimised manually, but most are either "known" to *RAM Charger* and handled automatically, or can be "learned" by the software – that is, with a little effort on your part.

If you're already struggling with available RAM, you'll get very real benefits from *RAM Charger* – and it will also help power users deal with big applications, big RAM requirements and big fragmentation problems.

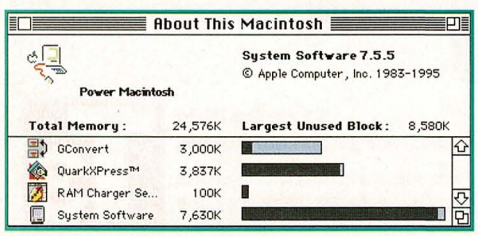
ROD LAWTON

Unexpected errors

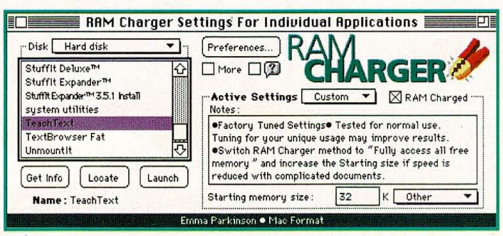
Applications will often quit unexpectedly with memory errors, where there's no more memory in the allocated block to complete a process. *RAM Charger* alleviates this problem by allowing all applications to use any or all of the RAM available.



This is how our Mac's memory usage looks with three applications running and without *RAM Charger*...



And this is how it looks with *RAM Charger* running! Our largest unused block is an amazing 5Mb larger.


RAM Charger Settings For Individual Applications
Disk Hard disk
Preferences...
More
RAM CHARGER
StuffIt Deluxe™
StuffIt Expander™
StuffIt Expander™ 3.5.1 Install system utilities
TeachText
TextBrowser Fat
Unmountit
Active Settings Custom
RAM Charged
Notes:
•Factory Tuned Settings• Tested for normal use. Tuning for your unique usage may improve results.
•Switch RAM Charger method to "Fully access all free memory" and increase the Starting size if speed is reduced with complicated documents.
Get Info
Locate
Launch
Name: TeachText
Starting memory size: 32 K Other
Emma Parkinson • Mac Format

If any application doesn't behave as well as it should, you can manually adjust its *RAM Charger* settings.

RAM Charger 3.0

Frees up megabytes of precious RAM, runs on any Mac, and is compatible with Virtual Memory and *RAM Doubler*. Marvellous!

Features	**95%**
Ease of use	**91%**
Documentation	**84%**
Value for money	**94%**
MF rating	**93%**

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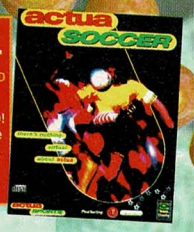

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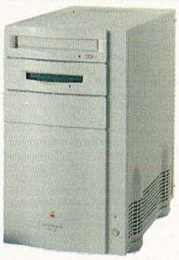

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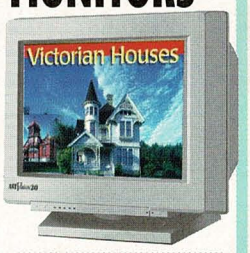

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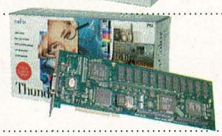

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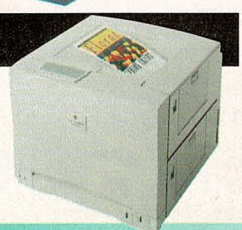

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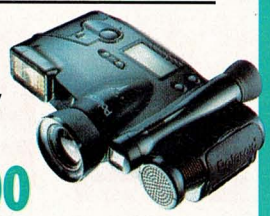

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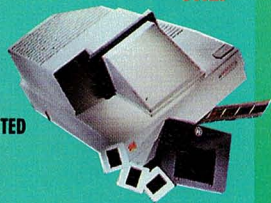

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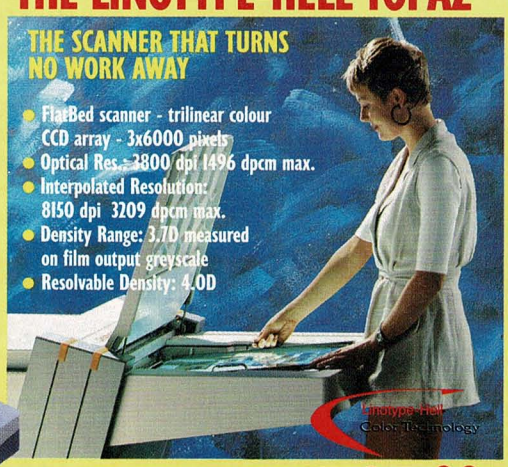
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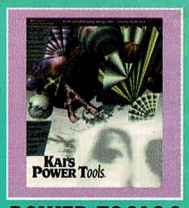

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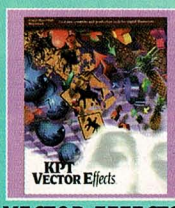

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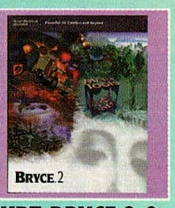

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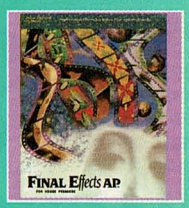

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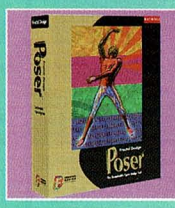

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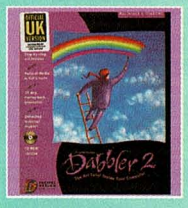

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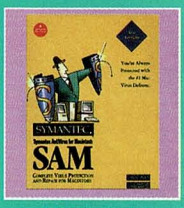

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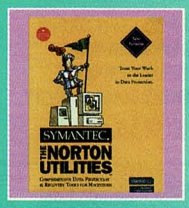

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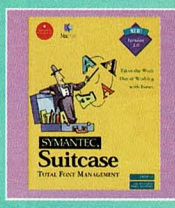

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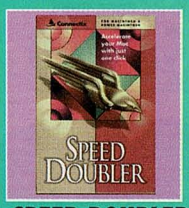

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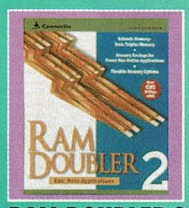

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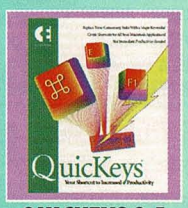

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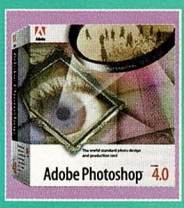

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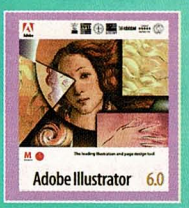

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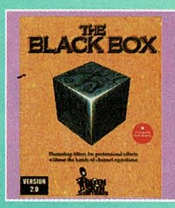

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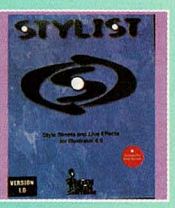

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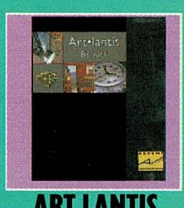

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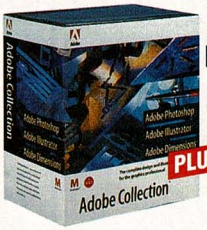

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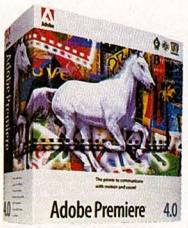

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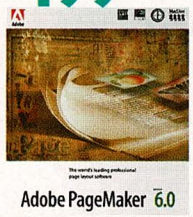

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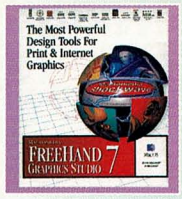

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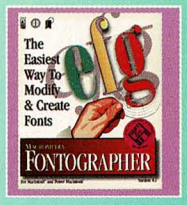

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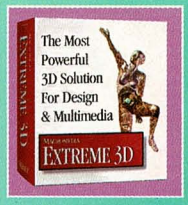

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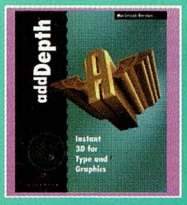

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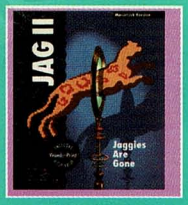

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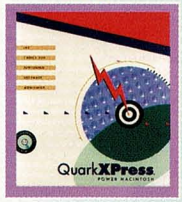

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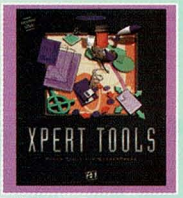

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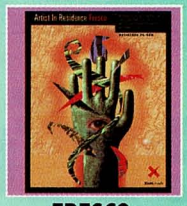

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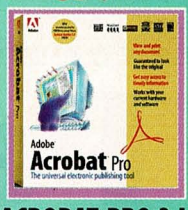

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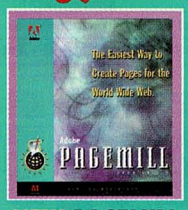

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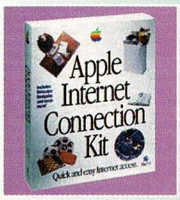

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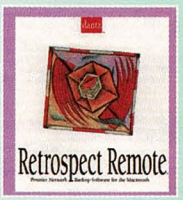

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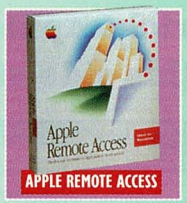

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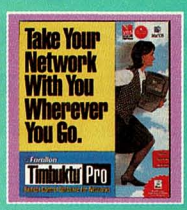

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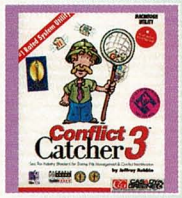

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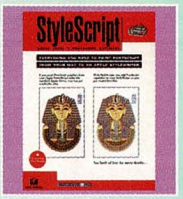

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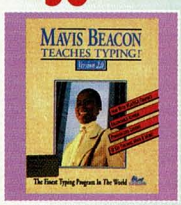

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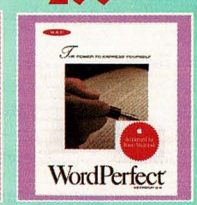

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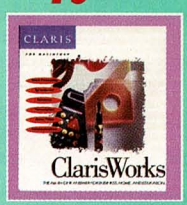

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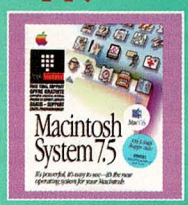

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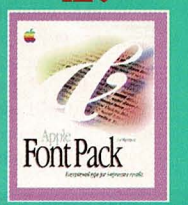

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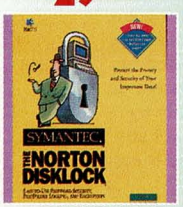

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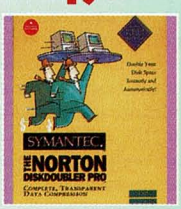

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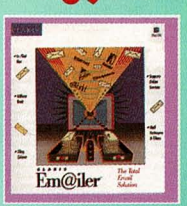

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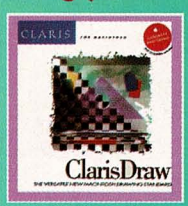

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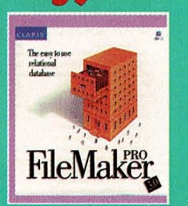

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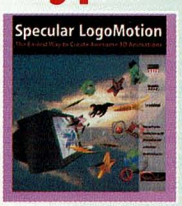

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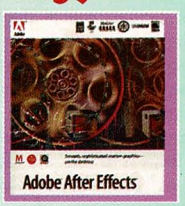

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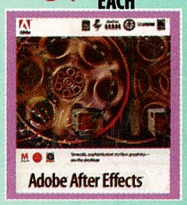

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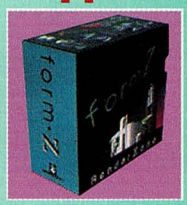

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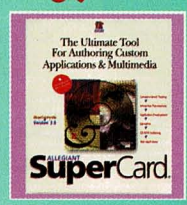

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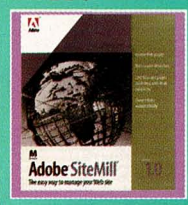

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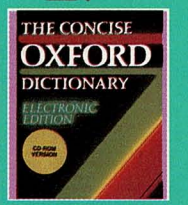

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Digital Performer

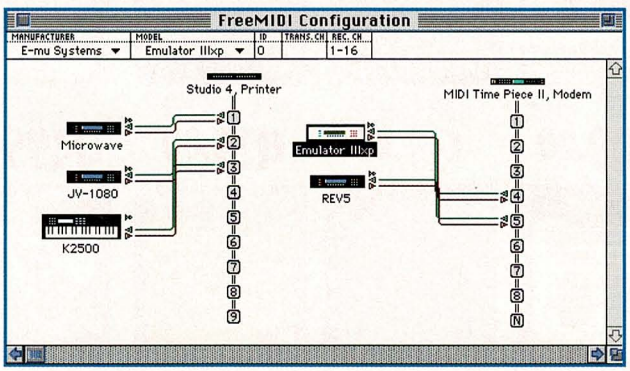
Born in the USA. Ian Waugh looks at one of America's major sequencer and digital audio programs and discovers it has a few tricks up its sleeve – which should ensure that it makes a big splash on this side of the pond.

Mark of the Unicorn was one of the first companies to release a professional sequencer for the Mac – *Performer* – over ten years ago, and has continued to develop it throughout the years. Unlike some software houses, Mark of the Unicorn has made only tentative advances towards other computer platforms and has, indeed, concentrated on developing a handful of products rather than spreading its resources among a wider and less specialised product range.

The result of this research and development is the company's flagship product, *Digital Performer*, a combined sequencer and direct-to-disk recording program. It has been updated considerably since its first release and now boasts dozens of new features, a sparkling colour interface and some rather neat tricks in the digital audio department, as you will soon discover.

It requires a Mac equipped with a digital audio card such as a Digidesign Audiomedia II card. Unlike some digital audio software, the program is not compatible with the Apple Sound Manager – it runs quite happily on an AV Mac but it can't use its audio capabilities.

The program installs very easily and uses a hard disk install as copy protection. You should also install *FreeMIDI*, otherwise the program won't run – this is supplied and is Mark of the Unicorn's alternative to the Apple *MIDI Manager* and to Opcode's *OMS* (Open MIDI System), which is, perhaps, slightly more popular. It basically handles MIDI (Musical Instrument Digital Interface) assignments within the system, allowing you to create a "virtual" studio which mirrors your MIDI hardware. Pop-up menus enable you to select sounds in each of your MIDI devices by name rather than by number, and other *FreeMIDI*-compatible programs can make use of the information too.



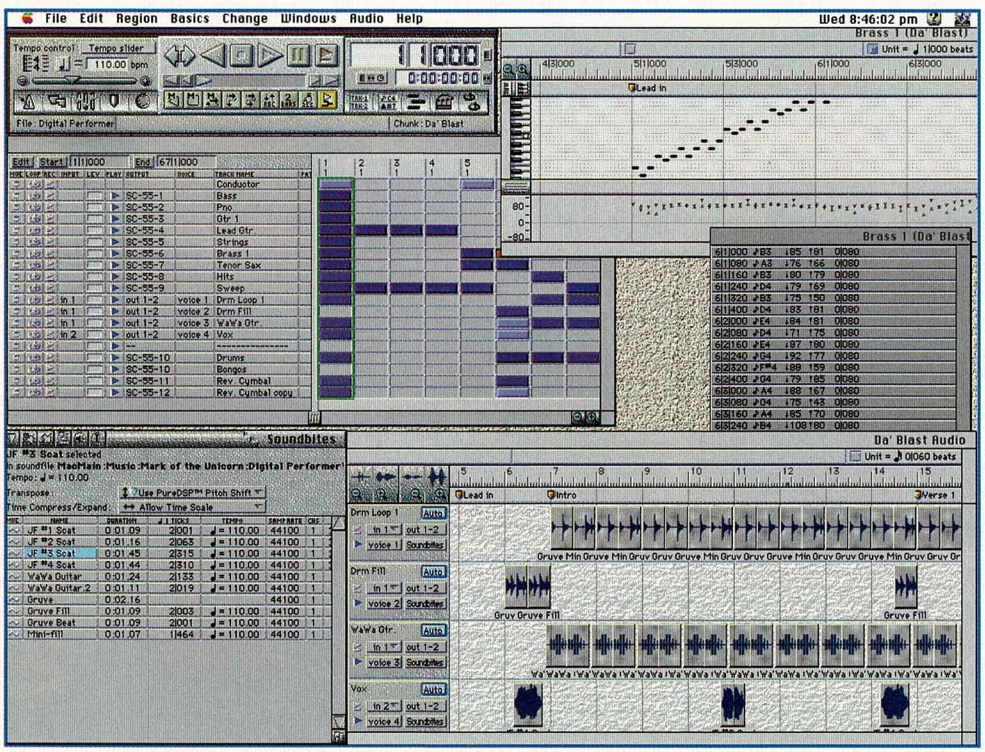
Create a virtual representation of your MIDI setup in *FreeMIDI* and all other *FreeMIDI*-compatible software knows about it.

In "auto" mode, *FreeMIDI* scans units connected via MIDI, so you may not have to enter any data into the program. However, for this to work, the unit's MIDI In and Out must be connected to the Mac so it can "talk" to the system. If sound modules are connected only by their MIDI In, the system won't get any feedback. But even so, the system is easy enough to set up manually.

Block moves

Digital Performer takes the now common approach to sequencing of displaying recordings as blocks which you can move, cut, copy, paste and generally shuffle around in the **Tracks** window. The layout differs slightly from that of other programs as the tracks are divided by vertical lines into bar-size chunks. Depending on the zoom resolution, a division may be one, two, four or more bars. When you drag a section, you move a block of data, even though the actual recording may be many times larger. You can select several blocks if you want to move more than one at the same time.

This automatic division is extremely useful if you tend to work with small

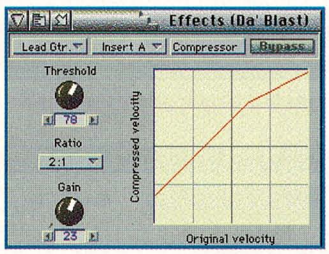


***Digital Performer's* sleek, new high-tech interface makes it look like a sleek, new piece of high-tech gear...**

sections of music, since it saves having to cut long tracks into smaller sections as you must do with other sequencers.

The contents of the **Tracks** window is called a **sequence** and you can create as many sequences as you like. If you're really organised, you can save a sequence as a block in the **Chunks** window. This is similar to the grouping function used by other sequencers – *Logic*, for example, wraps sequences up in folders, a nice Mac analogy. You can, therefore, create verse, chorus and solo sequences in the **Tracks** window and use each one several times in the **Chunks** window.

The **Chunks** window can also display another type of chunk called a "song", which can be a collection of other, er, chunks. In fact, a song can contain other songs, going as many layers deep as you wish. Confused? Well, the procedure may seem a little incestuous and you may not need or want to nest your music so deeply, but you don't have to use the feature if you don't want to.



The neat MIDI compressor works in a similar way to an audio compressor and even uses a graph to show the compression curve.

There are three main editors – the **Event List,** the **Graphic Editing** window and the **QuickScribe Notation** window. Pretty standard stuff here but with a few nice touches. In the **Event List,** notes which are close together are grouped to indicate that they are (or may be) a chord. The **View Filter** removes specified data from the display so you can see the types of data you want to edit more easily.

The lower section of the **Graphic Editor** shows controller data – you can draw in curved data to create smooth pitch bends or modulation changes, for example, by holding down **[option]** as you draw.

The **QuickScribe** window is useful if you like working with dots (notation) and it can show controller data beneath the notes too. It supports text but has no dedicated lyric mode (to enter syllables automatically under notes) and it lacks many of the frills some of the other high-end sequencers have. However, you'll find it's quite adequate for creating and printing quick, uncomplicated scores.

The program has lots of other interesting goodies, too. The Mixer consoles enable you to perform real-time mix-downs: several ready-made ones are supplied and you can create your own using slider, button and menu controls.

Also, in the **Device Groups** window you can create a collection of sounds from several devices and assign them all to a single track. This is a very neat solution to the problem of creating layered sounds, which is normally done by copying parts onto several tracks. Here, it's easy to create big string pads, brass stacks and mega-lead sound combinations – and then assign them to a part with the click of the mouse.

The program supports QuickTime movies, enabling you to synchronise sound and music. It's ideal for multimedia producers, and if you digitise your home movies, you can score them too.

Audio integration

Audio files appear in the **Tracks** window just like MIDI data. Double-clicking on one opens the **Audio Graphic Editor,** which shows all the audio tracks in the piece. Sections of recordings – or Soundbites – have their waveforms on the inside so you can see where the peaks and troughs occur. You can draw volume and pan curves directly into them, which is a great way to set and control relative volume levels. This still leaves you free to control the absolute levels with the Mixer console.

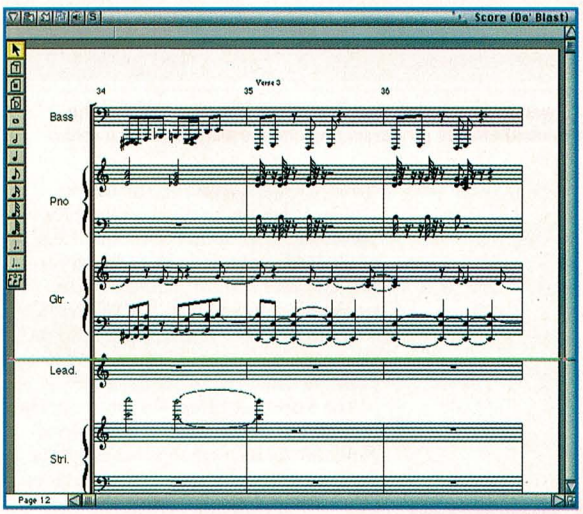
You can cut, copy, paste, trim and move Soundbites around their window, then listen to them and place them exactly where you want within your piece of music. The **Zero Crossings** function helps prevent pops and clicks which can distort the overall sound. And then you'll find that the **Soundbites** window shows all the audio sections you've recorded and imported – and you can drag them to the **Edit** windows to complete the process.

One problem with combining different samples, say from a sample CD, is that they are likely to have been recorded at different pitches and at different tempos. No problem here though – *Digital Performer's* **PureDSP** (the digital audio processing feature of the package) comes to the rescue. This has three major functions: time stretching, pitch shifting and formant processing. Put simply, time stretching changes the duration of a sound without changing its pitch, and pitch shifting changes the pitch of a sample without changing the duration.

These functions let you do some clever things with audio. You can, for example, ➤

Zero Crossings

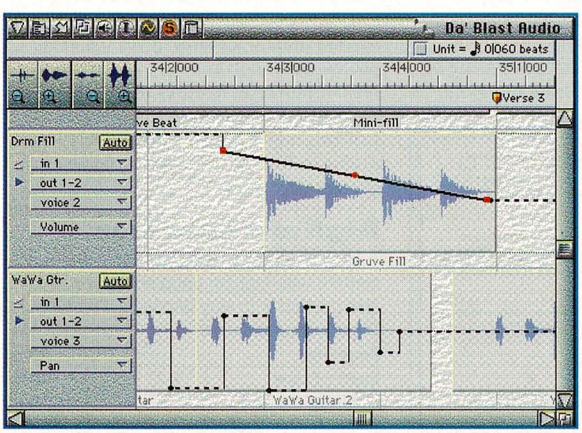
If two Soundbites are simply butted against each other and join at a point where the waveforms have a volume which is not zero, then a click will occur. Zero Crossings automatically shuffles the Soundbites so the join occurs where the waveforms have a zero volume level. The transition between Soundbites should then not create a click. Simple, yet extremely effective.



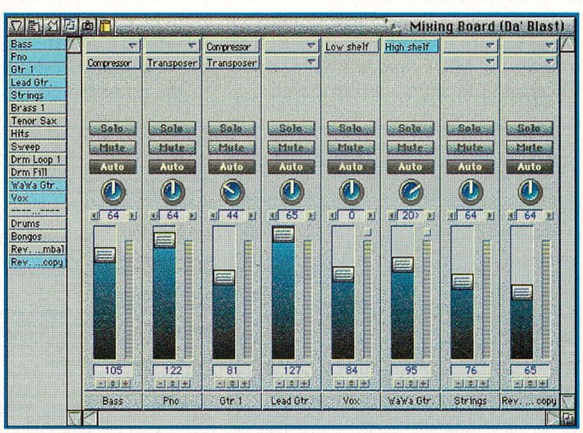
If you like working with the dots, you can edit your music in the QuickScribe editor.

What's MIDI?

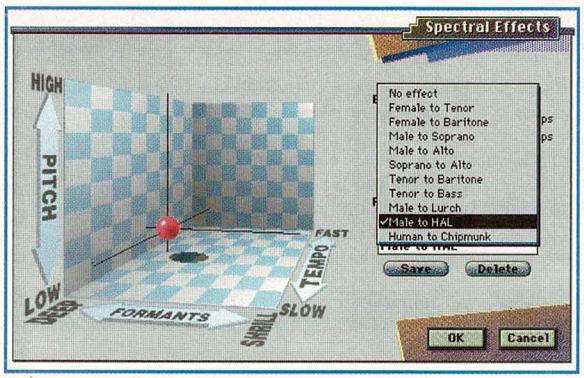
MIDI stands for Musical Instrument Digital Interface, and it's the standard system used for connecting music equipment to your Mac. It's also a music file format, including instrument descriptions, that most programs can play back.



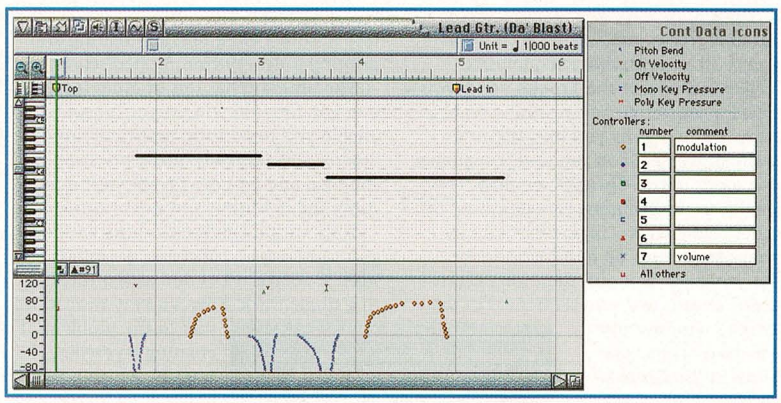
You can draw volume and pan curves directly onto the waveforms in the Audio Graphic Editor.



The Mixing Board controls both MIDI and audio tracks, and you can also access plug-in effects from it.



As well as performing time stretching and pitch shifting, the Spectral Effects processor can change the gender of a voice.



You can draw controller curves in the lower part of the Graphic Editor.

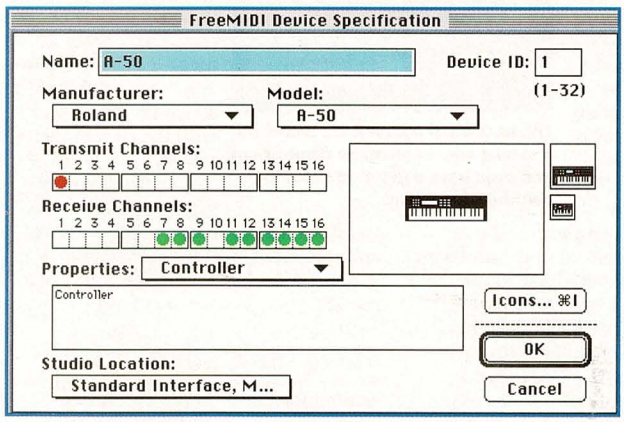
speed up and slow down the tempo, "rubato" fashion, without altering the pitch. You can also make a sequence play at the tempo of imported audio. A particularly nice feature is the ability to transpose both audio and MIDI files in a single operation – although you can prevent certain parts being transposed to preserve drum tracks, for example.

The **Spectral Effects** section shifts the formants of a monophonic sound independently of its pitch. Formants are the tonal qualities of a sound which, among other things, help determine the gender of a voice. Using this function you can turn a tenor into a soprano – ouch! – and perform other sex-change operations without a safety net.

This works extremely well and is very impressive. You can transpose a sound by several tones with no ill effect. The function works best on pitched monophonic sounds, although it can be applied to any sample. It works by analysing the harmonic content of the recording before processing it. This can take a while, although once a sample has been analysed, the result is saved to disk, so subsequent processing doesn't take you very long.

A background processing feature enables you to select a number of samples for processing and continue using the computer while it does its number crunching. The PureDSP code is PowerMac native – it still runs on other Macs, it just takes a little longer.

The **Mixing Board** is a mixer for controlling both MIDI and audio tracks. If your hardware supports effects, they are available here from pop-up menus. Interestingly, the MIDI channels have two processing functions – a transposer,



It's easy to configure *FreeMIDI* manually using pop-up menus and click boxes.

Music maestro

If you missed our recent series on digital audio processing plug-ins and software (in MACFORMAT 43 to 46), turn to page 144 to find out how to order the back issues you need.

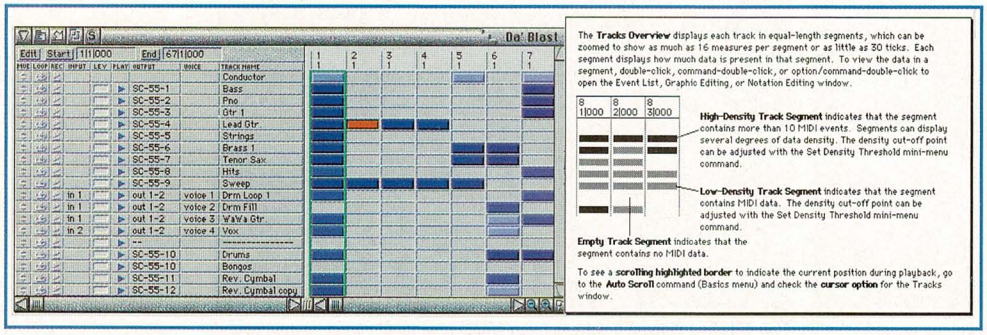
which is pretty straightforward, and a compressor. This enables you to reduce (compress) or increase (expand) the velocity range using settings similar to those on an audio compressor. Changes take effect during playback only. Very neat indeed.

If you don't like reading manuals, you won't get the best out of any piece of feature-packed software. *Digital Performer* comes with four manuals including a mega 800-page reference guide – but don't let that put you off. They are all extremely well written, illustrated and laid out, and the three introductory booklets will help you get up and running as quickly as possible. There's a section on hard disk recording, so if you're new to the subject you can pick up a few basics. The program also has on-line help, a feature not as widely supported in music software as it should be.

Digital Performer doesn't have some of the more esoteric processing functions you might expect to find in such a professional package – but if you're more into recording than processing this won't trouble you. It has no waveform editor and lacks audio effects such as reverb – but most of the competition lack these too. At this level, the assumption seems to be that you will have your own wave editor and effects software or outboard effects units.

However, the PureDSP functions are excellent and if you need this sort of processing there's currently nothing on the market to touch it – but don't expect that situation to go unchallenged for too long. It's likely that developers will start to incorporate effects into their software in the future.

At the moment *Digital Performer* is a very serious and desirable piece of kit. The new interface, coupled with the myriad of new features, gives it a very professional look and feel, and it has a host of powerful features, many novel and unique to the program. Mark of the Unicorn may have a comparatively low profile in the UK, but that could be set to change very soon.


Do' Blast
The Tracks Overview displays each track in equal-length segments, which can be zoomed to show as much as 16 measures per segment or as little as 30 ticks. Each segment displays how much data is present in that segment. To view the data in a segment, double-click, command-double-click, or option/command-double-click to open the Event List, Graphic Editing, or Notation Editing window.
High-Density Track Segment indicates that the segment contains more than 10 MIDI events. Segments can display several degrees of data density. The density cut-off point can be adjusted with the Set Density Threshold mini-menu command.
Low-Density Track Segment indicates that the segment contains MIDI data. The density cut-off point can be adjusted with the Set Density Threshold mini-menu command.
Empty Track Segment indicates that the segment contains no MIDI data.
To see a scrolling highlighted border to indicate the current position during playback, go to the Auto Scroll command (Basics menu) and check the cursor option for the Tracks window.

On-line Help offers point-and-click descriptions of the various parts of the program.

Digital Performer

A fairly comprehensive package – and not content with looking good on-screen, it's also packed with very impressive features. Highly recommended.

Features	**82%**
Ease of use	**80%**
Documentation	**94%**
Value for money	**82%**

MF rating 84%

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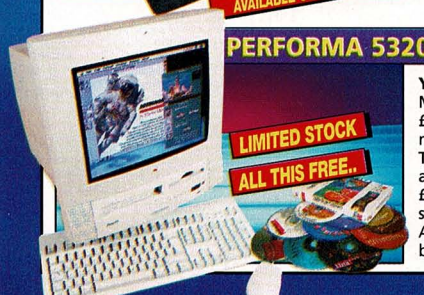

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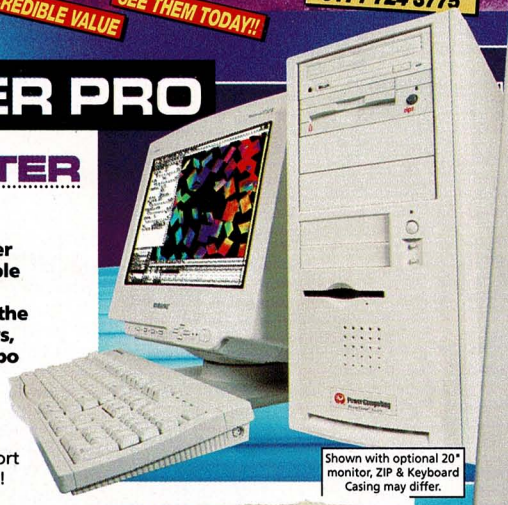

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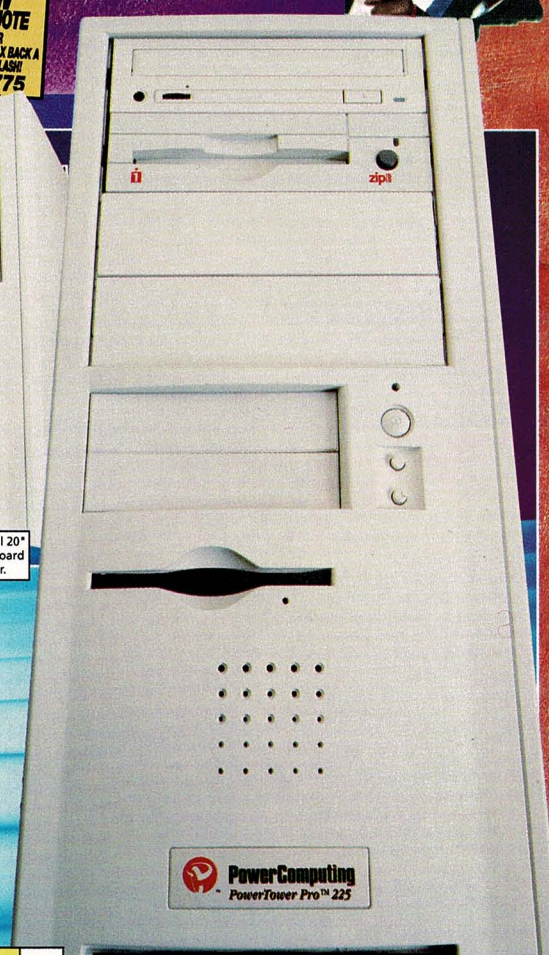
- MacWEEK Magazine 22.7.96

PowerComputing

IN STOCK!!! WHY WAIT FOR SYSTEMS THAT MAY NEVER ARRIVE? CW HAVE BEEN SHIPPING 225MHZ FOR THE PAST TWO MONTHS! GET YOURS!!

THAT'S FAST!!



T...THE REDDER THEY GET, THE FASTER THEY GET...THE REDDER THEY GET, THE...

POWER CENTER	POWER BASE	POWER TOWER PRO
150MHz 604 RISC Integral FPU 32K on-chip cache	240MHz 603e RISC Integral FPU 32K on-chip cache	225MHz 604e RISC Integral FPU 64K on-chip cache
Via CPU daughter card	Via CPU daughter card	Via CPU daughter card. Dual support.
512K Level-2 Cache standard	256K Level-2 Cache standard	1Mb Level-2 Cache standard
3 PCI Slots	3 PCI Slots	6 PCI Slots
16Mb RAM DIMMS 512Mb max	16Mb RAM DIMMS 160Mb max	16Mb RAM DIMMS 1GB max
1MB VRAM 4Mb Max	2MB VRAM	8MB IMS Twin Turbo Graphics Card
x4 speed CD-ROM	x8 speed CD-ROM	x8 speed CD-ROM
Mini Tower	Low Profile Desktop or Mini Tower	Tower

225 Mhz 604e

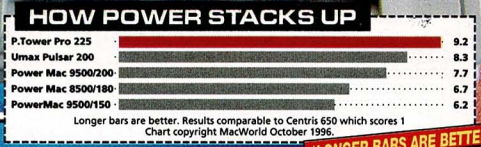
£2995

CALL FOR SPECIAL SALE PRICES - NOW!!

EX KEYBOARD SALE SPECIAL

P.TOWER PRO 16/2GB, CD, 8MB TWIN TURBO

HOW POWER STACKS UP



Longer bars are better. Results comparable to Centris 650 which scores 1
Chart copyright MacWorld October 1996.

*LONGER BARS ARE BETTER

604 POWER CENTER

"Performance and price combine to make the PowerCenter the most sensible choice for business and graphics." - MacWorld July 1976

BEST VALUE 604'S YOU CAN BUY!!

For many office users who dabble in DTP and desktop video, PowerCenters are the natural CW choice. These stunning mid-range machines blow much of the competition away with a combination of cracking speed, good expansion and high specification. PowerCenters ship with 132Mhz or 150Mhz upgradable 604 RISC cpus, PCI expansion slots, Ethernet, on-board VRAM and a great software bundle.
Don't delay - Go for Power Computing PowerCenter systems if you're looking for incredible CW value.

"PERFORMANCE AND PRICE COMBINE TO MAKE THE POWER COMPUTING POWERCENTER THE MOST SENSIBLE CHOICE FOR BUSINESS AND GRAPHICS".
- MacWorld

MW EDITORS' CHOICE

MW ★★★★/7.3

150 Mhz 604 P.CENTER 16/1G, X4 CD,

£1599

£1879 INC VAT

CW IS KNOCKED OUT WITH THE SPEC.

- Choose from 132, 150MHz 604 RISC machines in Low profile or Mini Tower
- 512Kb Level-2 cache
- x4 speed CD-ROM
- 3 PCI expansion Slots
- 1Mb VRAM
- 16Mb RAM, exp to 256Mb (4 DIMM slots)
- CPU upgradability via CPU daughter card
- 1 GIG hard drive
- In-built Ethernet
- 2 spare bays for Zip, Jaz CD Writer (on mini tower)

PLUS - Over £500 of FREE SOFTWARE
Free software includes * FWB Hard Disk Tool Kit PE * FWB CD-ROM Tool Kit * ClarisWorks * Grolier's Multimedia Encyclopedia * Now Contact * Now Up-to-Date * Nisus Writer [Trial] * Intuit's Quicken SE * America Online [Trial] * Compuserve [Trial] * 250 Bitstream Type 1 and Type 2 fonts **AND MORE!!**

Shown with optional 17" monitor. Casing may differ.

WOW!

132 Mhz 604

£1399

EX KEYBOARD EX VAT £1644 INC VAT

LOW-COST MEGA SPEED

POWER CENTER 16/1GB X4 CD-ROM

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IN STOCK NOW!! GREAT BUNDLES EXCLUSIVE DEALS INCREDIBLE VALUE HURRY ALONG NOW

THE PERFORMA ADVANTAGE

Apple Macintosh Performa computers are CW recommended for the home and individuals. Every model is a complete multimedia computer A variety of software applications and utilities are already installed in these computers to help you and your family be more productive. Software applications are included with all models and third-party applications and CD-ROMs are included in most models.

PERFORMA 5320/120

It' all here - nothing else to buy. This is a complete system!!

- 15" Monitor
- Stereo speakers
- x4 speed CD-ROM
- CW Keyboard
- MPEG Card
- TV/Video IN
- 28.8 Modem
- FREE software

WOW!

Shown with optional Apple Extended Keyboard

FREE SOFTWARE

DISNEY PLUS 3 SOFTWARE PACK INCLUDED - FREE!!

INSTALLED ON HARD DRIVE: At Ease, Claris Works, ClickArt, Hypercard Player, MacGallery, Mavis Beacon Teaches Typing, Millies Math House, Spin Doctor, SuperMaze Wars, Thinking Things 2

INCLUDED ON CD-ROM: Dorling Kindersley 'The Way Things Work', Grollers Encyclopedia, Making Music, Myst, Rednex, Rock, Rap & Roll, Daedelus Encounter, Lion King Story Book, Aladdin Activity Centre, Toy Story (Preview). PLUS Apple Internet Connection Kit!

5400/180

A GREAT CW BUY!!

With its state-of-the art RISC-based processor and advanced multimedia capability, the all-in-one Apple Performa 5400/180 is CW ready to inspire your creativity and boost your productivity.
And this model comes in 'living-room black' just like your tele!

- 180Mhz PowerPC 603e
- 16Mb RAM (exp to 136Mb)
- Internal 1.6GB hard drive
- x8 speed CD-ROM drive
- Integral a 15" monitor with 1,000s of colors
- TV Tuner
- 28.8 FAX/Modem
- Optional MPEG Card
- **FREE SOFTWARE** loads of CD's (see below)!!

180Mhz 603e	5400/180 16/1.6, CD TV
£ JANUARY SALE	

SALE SPECIAL

FREE SOFTWARE

CW RECOMMENDED

BOTH 5400 MODELS COME PRE-LOADED WITH ALL THIS GREAT SOFTWARE!!

MacOS 7.5.3, The Best of European Soccer, Apple Telecom 3.0, The Ultimate Human Body, Apple Video Player, Disney - Lion King Story Book, Aladdin Activity Centre, Toy Story (Preview), 120 Letters, Acrobat Reader, At Ease, Grollers Encyclopedia, ClarisWorks v4, MacLink Plus, Full Throttle, HyperCard Player, Descent, Performa ClickArt, Thinking Things 3, Sammy's Science House, PowerPete. Plus Apple Internet Connection Kit.

WOW!

EVERYTHING'S INCLUDED!

This is it. The most incredible deal of the year! How CW does it time and again is beyond me. A complete 120Mhz Macintosh system with 15" monitor, MPEG card, TV Tuner and 28.8 modem, keyboard, mouse and software for less than £1200! Stocks are limited so place your order TODAY to avoid disappointment.

- Powerful and speedy 120Mhz PowerPC 603
- 8Mb of on-board RAM memory
- 1.2Gigabyte internal Hard Drive fitted
- Built-in stereo speakers & microphone
- Integrated 15" color monitor (13" viewable)
- TV tuner + remote control included
- Video IN for QuickTime recording
- Built-in x4 speed CD-ROM drive
- CW extended keyboard & Apple mouse
- Internet-ready 28.8 FAX/DATA Modem
- MPEG video card included
- **FREE (& only at CW) Grolier Encyclopedia, Guiness Book of Records & much more!!**

SAVE ££££'S! 120Mhz 603

LIMITED STOCK

LOOKS GOOD!

£1149

5320 8/1.2GB, CD, 28.8 MODEM, MPEG, TV

INC CW KEYBOARD EX VAT £1350 INC VAT

ADD A GENUINE LASER PRINTER!

Why not make your 5320 complete with a genuine Brother LASER PRINTER. That's right, not an ink-jet but a great 300dpi 6ppm award winning laser which uses microfine toner for the most gorgeous output that an Ink-jet cannot hope to match!!

£1419 £1667 INC VAT

5320 + BROTHER LASER PRINTER

5400/160

FREE SOFTWARE

EXCEPTIONAL VALUE!!

If you're looking for a great value all-in-one solution with enough grunt to handle all the latest games and multimedia titles, this could be the Mac for you. Same spec as the 5400/180 yet with a 160Mhz processor and minus the TV tuner. CW ideal for home, office and classroom!!

- 160Mhz PowerPC 603e
- 16Mb RAM (exp to 136Mb)
- Internal 1.6GB hard drive
- x8 speed CD-ROM drive
- Integral a 15" monitor with 1,000s of colors
- 28.8 FAX/Modem
- Optional MPEG Card
- **FREE SOFTWARE** loads of CD's (see above)!!

160Mhz 603e	5400/160 16/1.6, CD TV
£ JANUARY SALE	

SALE SPECIAL

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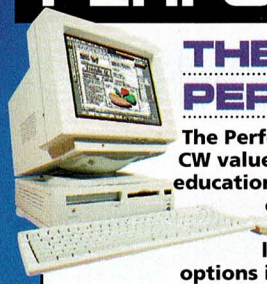
TOP CW VALUE | NEW 200MHZ MODEL | GREAT BUNDLES | BEST UK PRICES!! | SEE THEM TODAY!!

WOW!

120Mhz 603 | 6320/120 8/1.2GB CD
£799
£939 INC VAT

PERFORMA 6320/120



THE BEST VALUE PERFORMA EVER!

LOWEST PRICE IN THE UNITED KINGDOM!

The Performa 6320 delivers quite astonishing CW value and is recommended for home and education users who find the all-in-one approach of the 5320/5400 too limiting. With this Mac you can take advantage of a larger screen & choose from a range of options including in-built TV Tuner, MPEG Video Card, Modem etc. In addition you also get FREE a fantastic software bundle packed with great games and education titles. CW says "This is the best value - EVER!!"

- 120Mhz PowerPC 603e processor
- 8Mb RAM (expandable 64Mb), 1.2GB internal hard drive
- 15" monitor support
- Optional Video IN capability
- Built-in x4 speed CD-ROM drive
- 28.8 Modem optional
- **Less than £950 gets you the complete system with CW 14" monitor, keyboard, mouse and software!!**

SAVE ££££'S!

120Mhz 603
£949
6320 8/1.2CD, KEYB & CW 14" MONITOR
INC KEYB & MONITOR EX VAT £1115 INC VAT

COMPLETE SYSTEM!!

FREE SOFTWARE

ADD A GENUINE LASER PRINTER!

Why not make your 6320 system complete with a genuine Brother LASER PRINTER. That's right, not an ink-jet but a great 300dpi award winning laser!!

£1225 £1439 INC VAT
6320 + BROTHER LASER PRINTER

DISNEY PLUS 3 SOFTWARE PACK INCLUDED - FREE!!
INSTALLED ON HARD DRIVE: At Ease, Claris Works, ClickArt, Hypercard Player, MacGallery, Mavis Beacon Teaches Typing, Millies Math House, Spin Doctor, SuperMaze Wars, Thinking Things 2
INCLUDED ON CD-ROM: Dorling Kindersley 'The Way Things Work', Grolliers Encyclopedia, Making Music, Myst, Rednex, Rock, Rap & Roll, Daedelus Encounter, Lion King Story Book, Aladdin Activity Centre, Toy Story (Preview). PLUS Apple Internet Connection Kit!

PERFORMA 6400

YOU DECIDE....
180 MHZ 603e POWER PC
200 MHZ 603e POWER PC

NEW!

MINI TOWER WITH THE BIG PUNCH!!

Here it is, the great new little Mini Tower from Apple bristling with CW exciting features. It's a fast little devil as well, as it comes equipped with a choice of 180 or 200Mhz PowerPC 603e processor. Expansion is taken care of via (for the first time in a Performa) PCI slots and multimedia capability is huge thanks to 16-bit stereo SRS™ 3D Surround Sound, 16-bit color display support and an in-built x8 speed CD-ROM. Here's the low down.

- Choose 180Mhz or 200Mhz 603e processor
- 16Mb (exp to 136Mb) RAM, 2.4GB Drive (180 1.6GB)
- 1Mb VRAM for 16-bit color support
- x8 speed CD-ROM
- 28.8bps Internet-ready modem included
- Integrated sub woofer & SRS 3D surround sound

Shown with optional 14" monitor & keyboard

200Mhz 603e
SAVE ££££'S!
£1499
6400/200 16/2.4, X8CD, 28.8 MODEM
INCLUDES CACHE!
INC CW KEYBOARD EX VAT £1761 INC VAT

FREE PERFORMA 6400

BOTH CW PERFORMA 6400 MODELS COME PRE-LOADED WITH ALL THIS GREAT SOFTWARE!

MacOS 7.5.3, The Best of European Soccer, Apple Telecom 3.0, The Ultimate Human Body, Apple Video Player, Disney - Lion King Story Book, Aladdin Activity Centre, Toy Story (Preview), 120 Letters, Acrobat Reader, At Ease, Grolliers Encyclopedia, ClarisWorks v4, MacLink Plus, Full Throttle, HyperCard Player, Descent, Performa ClickArt, Thinking Things 3, Sammy's Science House, PowerPete. Plus Apple Internet Connection Kit, Claris Organizer and Claris Impact.

Shown with optional 14" monitor & keyboard

6400/180

The same super mini-tower design as its big brother but with a slightly less powerful processor. A great machine for the home office!!

- 180Mhz PowerPC 603e processor
- 16Mb RAM (exp to 136Mb)
- Runs a 15" monitor @ 1,000s of colors
- Internal 1.6GB hard drive
- x8 speed CD
- 28.8 modem
- **FREE CD's!!** See above list for details.

180Mhz 603e | 6400/180 16/1.6, CD 28.8
£1299
£1526 INC VAT

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CW RECOMMENDED

POWER MAC 9500

9500/180MP
9500/200

APPLE'S FASTEST MACS EVER!

Hunky body - lotsa power - these two monsters are geared for the graphics, video and multimedia professional. The 9500/180MP features two 180Mhz PowerPC 604e chips while the 9500/200 is simply the fastest Apple MacOS computer. PCI technology offers low-cost cards for such uses as video conferencing, video production, and high-speed networking. These capabilities can provide significant performance improvements in processor-intensive applications such as video-editing and 3D modelling.

- One 200MHz, or two 180MHz PowerPC 604e processors
- Integrated FPU and 64K cache
- 512K level 2 cache
- Internal 2GB Fast SCSI hard disk
- Internal 8x-speed CD-ROM drive
- 10BASE-T and AAUI-15 Ethernet
- Upgradable processor
- Expandable to 768MB via 12 DIMMs
- 512K level 2 cache
- Six PCI expansion slots
- Internal Fast SCSI bus (up to 10MB/s)
- External SCSI bus (up to 5MB/s)
- 16-bit stereo sound I/O
- DB-15 connector for monitor (on accelerated graphics card)

Best Price in the UK - You just can't buy better than 'ol CW!!

180 Mhz 604e x2 — 9500/180MP 32/2G X8CD
£[illegible] JANUARY SALE
SALE SPECIAL

200 Mhz 604e
£2799 JANUARY SALE
EX KEYBOARD SALE SPECIAL
POWERMAC 9500/200 32/2GB X8CD

Shown with optional 20" monitor, & Keyboard

SAVE £££'S!

POWER MAC 8500/180

THE NEW MAC WORKHORSE

Shown with optional 17" AV monitor, & Keyboard

The PowerMac 8500/180 features the new PowerPC 604e processor which has twice the internal cache as the standard 604 for enhanced performance.
In addition you get all the advantages of the 8500 design including dual SCSI, interleaved memory, Video IN/OUT, 3 PCI slots and an expandable Tower design.

- 180Mhz PowerPC 604e
- 16Mb RAM (expandable to 512Mb)
- 256K Level 2 cache
- 3 'industry standard' PCI slots
- AAUI and 10Base-T Ethernet
- 2Mb VRAM (exp to 4Mb)
- x8 speed CD-ROM
- **Top Value from CW!!**

SAVE £££'S!

180Mhz 604e
£2299 JANUARY SALE
EX KEYBOARD SALE SPECIAL
8500/180 16/2GB X8 CD 256K L2 CACHE

WOW!

8200/120

AFFORDABLE APPLE TOWER

WOW!

Superb expansion and great value, - ideal for general office use. CW recommended.

- 120 Mhz PowerPC 601
- 8Mb RAM (exp to 256Mb)
- 256K Level 2 cache
- 1.2 Gigabyte hard drive
- x4 speed CD-ROM drive
- In-built Ethernet
- Dual Channel SCSI
- 3 PCI expansion slots
- Price includes on-board VRAM video display

LIMITED STOCKS!!

120 Mhz 601 — 8200/120 8/1.2GB X4CD
JANUARY SALE
SALE SPECIAL

7600/132

THE BUSINESS STANDARD

WOW!

Perfect for business and handy in the graphics studio, the 7600/132 bristles with great features.

- 132Mhz PowerPC 604
- 16Mb RAM (exp to 512Mb)
- 256K Level 2 cache
- 1.2 Gigabyte hard drive
- x8 speed CD-ROM drive
- In-built Ethernet
- Dual Channel SCSI
- 3 PCI slots
- Video IN - great for QuickTime

Shown with optional 17" monitor, & Keyboard

132Mhz 604 — 7600/132 16/1.2GB X8CD
JANUARY SALE
SALE SPECIAL

150MHZ, 200MHZ? - 601, 603E, 604, 604E? - CW SPILLS THE BEANS ON THE PROCESSOR MAZE

It used to be easy, If you wanted the fastest Mac, all you had to do is look for the Mhz rating and go for the higher rating. Unfortunately things aren't quite so easy nowerdays what with 604's, 601's, 604e's and 603e's. You can no longer reliably compare a computers performance by just looking at the speed of the processor alone. You need to know which processor and how much on-cip (Level 1) and Level 2 cache there is. (Plus of course the speed of the hard drive, how much RAM is present etc.) The 603 family's and 604 family's are very different and you cannot directly compare MHz for MHz. Another important factor is the speed of the main board bus. Modern processors (604, 603e etc) run faster than the main board speed by using clock multiplies. For example the 9500/200 uses a Tsunami based board design which can run at bus speeds up to 50Mhz. Slot in a 604e, clock it at 4x and you get 200Mhz. A PowerTower by comparison uses a Catalyst board design which runs at a 60Mhz bus speed. Slot in a 604, clock it at 3x and you get 180Mhz. The Bus speed is an important factor in comparing a computers actual performance. MacUser recently did a test with a 240Mhz 604e on a 48Mhz bus and the same chip on a 60Mhz bus and found that the latter gave a significant performance increase. Because of all this clock doubling, tripling and quadrupling, the amount of Level 2 cache comes in to play. The processor uses the Level 2 cache (very high speed memory) while waiting for the board bus. The higher the clock multiply, the larger the cache required. For example the 9500/200 has a 512K of Level 2 cache, the 8500/180 has 256K and most of its performance gains are as a result of this and not necessarily the extra 20Mhz.

PowerPC 601
- The original PowerPC processor. Single 32-Kbyte unified (Lev 1) cache. 64-bit data bus, built-in FPU, Superscaler-3 instructions per clock.

PowerPC 603
- Used in PowerBooks and Performas. Separate 8-Kbyte instruction and data caches (Lev 1) , built-in FPU

PowerPC 603e
- As above but with separate 16-Kbyte instruction & data caches (Lev 1)

PowerPC 603e-200
- As 603e but with up to 6x clock multiplier support.

PowerPC 604
- Used in PowerMac 9500/150, 8500/150 etc, separate 16-Kbyte instruction & data caches (Lev 1). 4 instructions per clock.

PowerPC 604e
- Used in PowerMac 9500/200 etc, separate 32-Kbyte instruction & data caches (Lev 1). 4 instructions per clock.

BUS SPEED??? CLOCK SPEED?? LEVEL 2 CACHE?? WHICH PROCESSOR? WHICH PROCESSOR?

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CALL FOR SPECIAL SALE PRICES!

POWERBOOKS

FREE PRINTER
STYLEWRITER 2200

117Mhz 603e | 1400CS/117 16/750 CD

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SALE SPECIAL

ACTIVE SCREEN!

117Mhz 603e | 1400C/117 16/1GB CD

JANUARY SALE

SALE SPECIAL

133Mhz 603e | 1400C/133 16/1GB CD

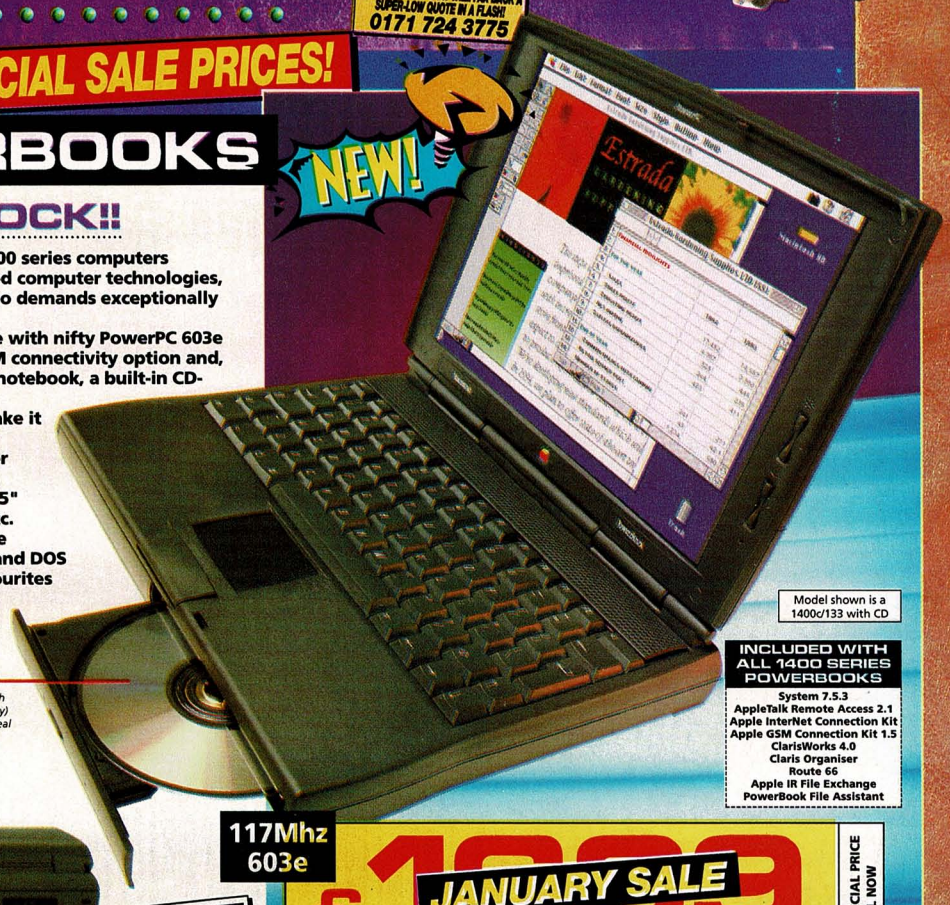
JANUARY SALE

SALE SPECIAL

NOW IN STOCK!!

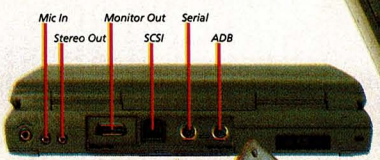
The Macintosh PowerBook 1400 series computers incorporate the most advanced computer technologies, making them ideal for CW who demands exceptionally high performance.
These superb notebooks come with nifty PowerPC 603e processors, PCMCIA slots, GSM connectivity option and, for the first time in an Apple notebook, a built-in CD-ROM drive bay.
Their built-in PCMCIA slots make it easy to add storage, wired or wireless networking and other capabilities. There's even an expansion bay for adding a 3.5" device such as optical drive etc.
Long battery life and software compatibility with Windows and DOS files make these new CW favourites the best in portable technology.
Try one yourself at CW today!!

NEW!



Model shown is a 1400c/133 with CD

NOW WITH CD-ROM!
The new PowerBook 1400 series (with the exception of the 1400c/117 floppy) include a x6 speed CD-ROM drive. Ideal for multimedia applications!



INCLUDED WITH ALL 1400 SERIES POWERBOOKS
System 7.5.3
AppleTalk Remote Access 2.1
Apple InterNet Connection Kit
Apple GSM Connection Kit 1.5
ClarisWorks 4.0
Claris Organiser
Route 66
Apple IR File Exchange
PowerBook File Assistant

117Mhz 603e

£1099 JANUARY SALE

1400CS 12/750 FLOPPY (NO CD)

SALE SPECIAL PRICE CALL NOW

SAVE £££'S!

SCOOP PURCHASE

WOW!

190/66cs

LIMITED STOCKS!!

Great value COLOR PowerBook with 68040 power. Hurry - Limited Stocks!!
- 66/33MHz 68LC040 processor
- 8MB RAM
- 500MB Hard Drive
- 9.5" backlit COLOR LCD screen

COLOR SCREEN!

LIMITED STOCKS!

190/66cs 8MB RAM

£1099

190/66CS 8MB RAM 500MB HARD DRIVE

EX VAT £1056 INC VAT

190/66

SAVE £££'S!

LIMITED STOCKS!!

'OI CW still has limited stocks of this great value PowerBook which features:
- 66/33MHz 68LC040 processor
- 8MB RAM
- 500MB Hard Drive
- 9.5" backlit dual-scan mono LCD screen

190/66 8MB RAM

£899

190/66 8MB RAM 500MB HARD DRIVE

EX VAT £1056 INC VAT

28.8 MODEM

MOTOROLA 3400 28.8 MODEM

Absolutely the best value and your low cost route to the Internet! Connect to on-line services - transfer data between buddies - send and receive faxes direct from your Mac - All possible!

£110

MOTOROLA 3400 MODEM

EX VAT £129 INC VAT

PORTABLE CD

PORTABLE MAC SCSI & AUDIO CD PLAYER

What an incredible deal!! here is a fully-functional battery or mains powered CD player which plays CD-ROMs and Audio CD's! Ideal for use with your PowerBook, desktop Mac or while out jogging!!

£69.00

RENO PORTABLE CD PLAYER

EX VAT £81 INC VAT

NEWTON

NEW NEWTON MESSAGE PAD 130

Better handwriting recognition, a funky back-lit screen, landscape or portrait operation, 1/2Mb more system RAM, full class II FAX support and more. Plus speedy from 20Mhz RISC processor & software!

£449

NEWTON MESSAGE PAD 130

EX VAT £526 INC VAT

33.6 MODEM

LASAT SAFIRE 33.6 MODEM

Check out this speedy 36.6 modem - its unbelievable! Enables you to connect to on-line services - transfer data - send and receive faxes direct from your Mac! So easy to install and use! Call us today!

£119

LASAT SAFIRE 33.6

EX VAT £140 INC VAT

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MAC OS SYSTEMS HERE AT CW NOW 603e & 604e UNIQUE FEATURES!

SAVE ££££'S!

UMAX

NEW!

3 SUPERB UMAX TOWERS

The Umax Pulsar Towers are perfect for those users who require good speed and plenty of expansion possibilities. Choose 150Mhz 604 or new 180Mhz & 200Mhz 604e power with Dual Processor capability and expandable up to 1040Mb of RAM. You also get 5 expansion bays and 6 PCI slots, x8 speed CD.
See them @ CW!

SAVE ££'S @ CW!

- Attractive, modern case design with unique swing-door
- 150Mhz 604 or 200Mhz 604e
- 512k Level 2 Cache
- 16Mb RAM (exp to 1040Mb
- Fast SCSI interface
- Dual Processor Capable
- LocalTalk & Ethernet
- 6 PCI expansion slots
- Interleaved memory
- x8 speed in-built CD-ROM
- 5 expansion bays
- **IN STOCK @ CW NOW!!**

6 PCI EXP. SLOTS
MAX 1GB OF RAM
UPGRADABLE
3 GREAT MODELS
SEE THEM TODAY!!

166 Mhz 604	PULSAR LITE 16/2GB CD
£ JANUARY SALE	
SALE SPECIAL	
200 Mhz 604e	PULSAR 2000 16/2GB CD
£ JANUARY SALE	
SALE SPECIAL	
225 Mhz 604e	PULSAR 2250 16/2GB CD
£ JANUARY SALE	

NEW!

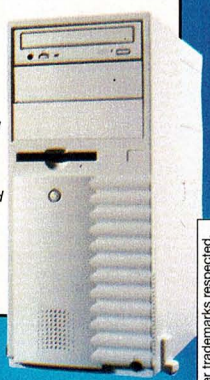
UMAX APUS!!

Shown with optional17" monitor

GREAT CW VALUE & PERFORMANCE

These great new systems also offer all the benefits of the Apple Mac OS combined with excellent performance. The Apus 2000 comes equipped with a PowerPC 603e processor which can be specified in 166MHz flavour while the tower Apus 3000 can be had as a super-speedy 200MHz machine delivering a real alternative to the Apple 6400. The other good news is that all have their processors mounted for easy upgradability - to 240MHz!!

All Umax Apus systems 100% MacOS compatible and run all Macintosh applications. They are also upgradable via a cpu swap to 240MHz! And they come with ClarisWorks v4, and FWB disk utilities.



UPGRADABLE TO 240MHZ

£849

APUS 2000/166 16/1.2 X8CD

INC KEYBOARD EX VAT £998 INC VAT

200 Mhz 603e	APUS 3000 16/2.1 X8 CD

£1299

£1526 INC VAT

MOTOROLA STARMAX

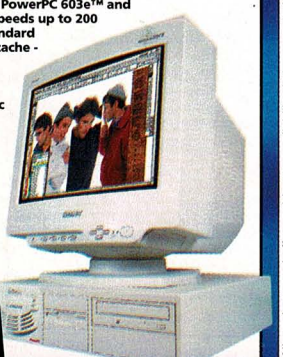
TOP NEW MAC OS SYSTEMS

The New Motorola StarMax systems are 100% MacOS compatible and offer an interesting alternative to the offerings from Apple, Power Computing, Umax et al. Available in slimline desktop or stylish tower designs CW reckons the performance and feature mix will excite many a Mac user. Choose from 603e or 604e processors at speeds from 160MHz to 200Mhz.
Here's the CW feature check:

- Choose from 603e (160MHz & 200MHz 32K internal cache) or 604e (160MHz & 200MHz 64k internal cache)
- All 4 models available in desktop or mini-tower designs
- 3 EDO RAM slots (2 slots - dual and single banks)
- Maximum RAM = 160Mb
- 256K level 2 cache (512K on the 4000 systems)
- 1Mb EDO VRAM (expandable to 4Mb)
- x8 speed IDE CD-ROM
- 1.2G hard drive (desktop), 2.5G drive (tower)
- PCI expansion slots (3 desktop, 5 tower)
- Supports 6 SCSI devices in addition to internal CD & Drive (they're IDE) ■ SVGA monitor port

A GREAT CHOICE!

Mac® OS compatible systems with industry-leading price performance and quality. The StarMax 3000 & 4000 features a state-of-the-art PowerPC 603e™ and 604e™ microprocessors with speeds up to 200 MHz, a minimum of 16MB standard memory, and a 256K Level 2 cache - all designed to deliver significant performance at an aggressive price. Every Motorola StarMax system comes pre-loaded with the same Mac OS you know and rely on. Multimedia is there in the form of 16-bit stereo sound and an 8x speed CD-ROM. The affordable StarMax family combines user-friendly Mac OS features with Motorola quality and dependability.



VERY FAST HARD DRIVES
603e AND 604e MODELS
256K OR 512K CACHE
DESKTOP OR MINI TOWER

NEW!

£CALL

FOR THE BEST MOTOROLA STARMAX PRICES

FOR BEST UK PRICES ON STARMAX

SAVE ££'S @ CW!

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CW ALSO SUPPLIES THESE FINE BRANDS

- MULTIPLE SCAN
- AV TECHNOLOGY
- SIZES 14" - 21"
- TRINITRON
- SHADOW MASK

BEST UK SELECTION
BEST UK PRICES!

"I CALL IT AS I SEE IT".

THE VIEWABLE AREA

When is a 15" screen not a 15" screen. When its viewable area is actually 13.3". For years screen manufactures have measured the size of the tube. However honest CW gives you the actual viewable area.

RESOLUTIONS & WYSIWYG

WYSIWYG - near 72dpi (What you see it what you get) means that what you see on screen matches the size of your actual document when it's printed. eg: select 100% view in Xpress and it will show a page at actual size. For WYSIWYG operation you need 832 x 624 pixels on a 17" monitor and 1024 x 768 pixels on a 20". However it's sometimes an advantage to forgo WYSIWYG in favour of the ability to view larger documents - in other words increase the resolution eg. 1024 x 768 pixels on a 17" monitor will display roughly an A3 spread.

MULTIPLE SCAN TECHNOLOGY

A monitor capable of multiple resolutions utilises multiple scan technology. The new Apple 17" and 20" monitors can switch resolutions on-the-fly.

DOT PITCH & SHARPNESS

Apart from the screen manufacture process the thing to look for is Dot Pitch (the distance between each group of red, blue and green phosphers that make up the smallest physical pixel possible. Generally the smaller the dot pitch the better the sharpness. A small dot pitch of 0.28mm provides a good clear image.

GLOSSARY OF TERMS

Convergence
How effectively the beams of red, green, blue hit their target. Adjustment can seriously affect the coloring of straight lines

Gray Linearity
Measurement of a monitors ability to show shades of grey. ie 0% white to 100% black if the monitors 3 guns operate differently the grays will have a color hue. eg reddish at 20% and greenish at 70%

Calibration
Technique for matching the colors you see on screen to the colors you get on a printed job

PANASONIC 15"

CW'S BEST VALUE 15" QUALITY MONITOR

This superb value Panasonic" multi-scan monitor digital technology to offer you a superb, crystal-clear picture. Front panel and on-screen controls make for easy set-up and it comes complete with cable and adaptor.

- 15" display, 0.27mm dot pitch
- Up to 1,024 x 1,280 pixel resolution
- Complete with cable and Macintosh adaptor
- Multi-scan technology
- Viewable area 13.5"

WOW!

LIMITED STOCKS!

ONLY @ CW!!

£219 EX VAT £257 INC VAT
Viewable area 13.5" PANASONIC 1562

PCI GRAPHICS CARD

WOW!

SCOOP PURCHASE

MAC PICASSO 620 4MB PCI GRAPHICS CARD

An accelerated PCI graphics card for your PCI bus equipped Mac OS system can be a real boon. Now there's no excuse. Here's a great super-speedy 64 bit PCI Graphics accelerator card offering 4MB of 50ns EDO VRAM and up to 1600 x 1200 resolution.

- 7" PCI card with 64-bit graphics accelerator chip from Cirrus Logic
- Mac DB15 and VGA monitor connectors
- 4Mb EDO VRAM. Up to 1600 x 1200 resolution
- Millions of colors at 1024 x 768

£189 EX VAT £222 INC VAT
4MB PCI GRAPHICS CARD

We have a wide range of essential PCI cards available at CW - For a kick off the speedier screen re-draws will save you time and the enhanced resolution and colors are essential for graphics and CAD. Call now for prices including CW's lowest cost PCI accelerated QuickDraw card.

APPLE MONITORS

APPLE 1710 TRINITRON
- 1,024 x 768 @ 75Hz
- Up to 1280 x 1024 @ 60Hz
- 0.28mm dot pitch

£619 EX VAT £527 INC VAT
Viewable area 16.1" APPLE 1710

APPLE 1710AV TRINITRON
- 1,024 x 768 @ 75 hertz
- Built-in microphone
- Integrated CD-quality stereo speakers!

£699 EX VAT £821 INC VAT
Viewable area 16.1" APPLE 1710AV

MULTIPLE SCAN 14"

- 14" shadow mask
- 640 x 480 @ 67 Hz
- 800 x 600 @ 75 Hz
- 0.28mm dot pitch
- Built-in speakers

Viewable area 12.4"
14" MULTIPLE SCAN WITH STEREO SPEAKERS
£215 £253 inc

MULTIPLE SCAN 15" AV

- 15" diagonal FST
- 640 x 480 pixels @ 67 Hz, 800 x 600 @ 75 Hz
- 0.28mm dot pitch
- Built-in speakers

Viewable area 13.3"
15" MULTIPLE SCAN AV APPLE MONITOR
£349 £410 inc

MULTIPLE SCAN 1705

- 17" Hitachi Shadow M.
- Up to 1,024 x 768 pixels
- c/w PC adaptor
- 0.28mm dot pitch
- Energy Star Compliant

Viewable area 15.8"
17" MULTIPLE SCAN SHADOW MASK MONITOR
£489 £576 Inc

MULTIPLE SCAN 20"

- 20" Sony Trinitron
- Up to 1,280 x 1,024 pix
- Built-in ADB ports
- 0.26mm dot pitch
- Energy Star Compliant

Viewable area 19.1"
20" MULTIPLE SCAN TRINITRON MONITOR
£1199 £1409

SONY TRINITRON

THE ORIGINAL & STILL THE BEST YOU CAN GET

Lets face it, if you want the best Trinitron you need a Sony. CW loves these to bits - there's even one on his desk. And he has the best prices in the UK on Sonys!

£309 EX VAT £363 INC VAT
Viewable area 13.9" SONY SFII 15"

£499 EX VAT £586 INC VAT
Viewable area 16.1" SONY SFII 17"

£1075 EX VAT £1263 INC VAT
Viewable area 19.1" SONY SFII 20"

SAVE ££@ CW!!

LOOKS GOOD!

MONITOR MADNESS

YOU JUST CAN'T TOP THIS CW 17" MONITOR DEAL!!

For the first time EVER you can now buy a superb branded 17" multi-scan monitor for your Mac for less than £350! Yes you read right - it's yet another incredible offer from CW! This monitor can display unlimited colors up to 1,024 (V) x 1,280 (H) resolution and has a viewable area of 15.8 inches. Comes from CW complete with cable and Macintosh adaptor. Unbeatable value!

- 17" display (15.8 inch viewable area)
- Maximum resolution of up to 1,024 x 1,280 non-interlaced
- Complete with cable and Macintosh adaptor
- Multi-scan technology ■ Unlimited display colors
- Dot pitch 0.28mm ■ 85MHz bandwidth
- Weighs 17.5Kg (38.5 Lbs)
- 15 pin mini D-Sub input connector (attached)

£349 EX VAT £528 INC VAT
CW 17" MONITOR

LIMITED STOCKS! ONLY AT CW!!

£219 £257 INC VAT
CW 15" MONITOR VIEWABLE AREA 13.78"

£399 £469 INC VAT
CW 17" DIAMONDTRON VIEWABLE AREA 16"

£149 £175 INC VAT
CW 14" MONITOR VIEWABLE AREA 13.5"

£949 £1115 INC VAT
CW 20" TRINITRON MONITOR VIEWABLE AREA 19"

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VOTED 1995 AND 1996 MacUser RESELLER OF THE YEAR

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LASER PRINTERS · A4 - A4 PRINTING · QUICKDRAW · INCREDIBLE VALUE · POSTSCRIPT

L.WRITER 300

LOW COST APPLE LASER

The Apple Personal LaserWriter 300 offers genuine Apple laser quality printing for the price of a mid-range ink-jet! Ideal for both office and home use. Call Computer Warehouse today for a great bargain!

- Genuine 300dpi mono print engine
- Speedy 4 pages per minute operation

£399 LASERWRITER 300 (EX VAT £469 INC VAT)

SAVE ££'S @ CW!

L.WRITER 4/600

600DPI POSTSCRIPT

Here's a 600dpi PostScript laser for the price of a personal printer. LaserBridge software allows integration into Ethernet networks. Ideal for home, education and small business users!

- 600dpi print engine
- 4 ppm operation
- LocalTalk network
- PostScript Level 2 - Ideal for low-end DTP!

£565 LASERWRITER 4/600PS (EX VAT £664 INC VAT)

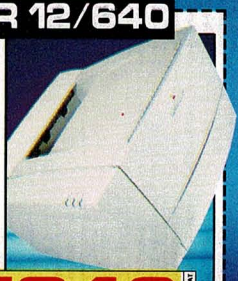
SAVE ££'S @ CW!

L.WRITER 12/640

12 PAGES PER MINUTE

High performance PostScript laser printer from Apple that provides incredible results. Easy to use and convenient all at an unbelievably affordable price! Supports Adobe PostScript level 2.

- 600dpi (250 sheet feeder)
- 12 ppm
- Expandable RAM
- Expansion kit adds duplex capability



£1049 LASERWRITER 12/640PS (EX VAT £1323 INC VAT)

SAVE ££'S @ CW!

L.WRITER 16/600

16 PAGES PER MINUTE

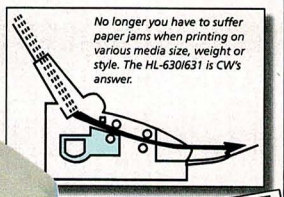
Fancy a 600DPI, FAST, PostScript laser printer with Ethernet? Not only does it do all this but it has the option of full-function send/receive FAX capability! Use it just like a Network FAX!

- 600dpi resolution with FinePrint & Photograde
- PostScript Level 2
- 16ppm operation
- Two trays on-line + option of a third!

£1299 LASERWRITER 16/600PS (EX VAT £1529 INC VAT)

SAVE ££'S @ CW!

300DPI LASER!!



No longer you have to suffer paper jams when printing on various media size, weight or style. The HL-630/631 is CW's answer.

EXCLUSIVE AVAILABLE ONLY FROM CW!

Only at CW will you find this incredible Brother HL-631 price. It's Exclusive!

- 300DPI SUPER-FAST PRINTING
- GENUINE BROTHER LASER
- USE WITH BOTH MACs & PCs
- WHY BUY AN INKJET??

CW RECOMMENDED

300DPI, BROTHER LASER PRINTING FOR THE PRICE OF AN INK-JET!!

WOW!

Lock up your daughters - he's done it again! CW just loves a deal and here is his latest. A superb brand name laser printer for less than £300!
And not just any old laser either. No, this quality unit is the award winning Brother HL-631 personal laser which has been designed to offer both the finest printing & the most affordable solution for your home & office. A firm favourite with our PC friends (it won the PC Magazines Technical Innovation of the Year), the Brother HL-631 stands out from the rest because of its speed, flexibility and print quality.
It's perfectly at home with a Mac or a PC - in fact it can be connected to both at the same time - and offers a straight paper path. No longer you have to suffer paper jams when printing on various media size, weight or style. A real boon to the office user.
Just check out these features:

SUPER-HIGH QUALITY PRINTING

- 300dpi printing with genuine Brother technology laser printing
- 6ppm
- Clear crisp print quality utilizing microfine toner.

VERSATILE PAPER HANDLING

- Straight paper path with short travel distance allows a wide choice of media styles, sizes (8.5 x 14" to 2.75 x 5") & weight
- Flexible multi-purpose sheet-feeder which holds 200 A4/LTR sheets or 10 envelopes.
- Manual feed slot for labels, light card stock & OHP transparencies

COMPATIBILITY & CONNECTIVITY

- Macintosh QuickDraw via RS-232C serial interface
- Most PC printer emulations standard. (HP LaserJet IIP, 850 & IBM Proprinter XL) + auto emulation switching
- Auto interface switching between Mac and PC

ENVIRONMENTALLY FRIENDLY

- Auto Sleep mode for power saving.
- Economy printing mode for toner saving

SAVE ££'S @ CW!

£299 BROTHER HL-631 LASER (EX VAT £351 INC VAT)

WHILE STOCKS LAST!! · ONE YEAR ON-SITE WARRANTY INCLUDED

HEWLETT PACKARD 6MP

NEW!

NEW HP POSTSCRIPT LASER!
The 8 page per minute engine and superb paper handling make this a CW recommendation for 1997. 3Mb of memory and LocalTalk plus PostScript level 2 compatibility.

- True 600 x 600dpi resolution
- Speedy 8ppm operation
- 3Mb RAM - expandable

£649 APPLE COLOR LASERPRINTER (£763 INC VAT)

APPLE 12/660PS COLOR

NEW!

POSTSCRIPT COLOR LASER
30% faster than the 12/600 it replaces, this great cross-platform color laser offers superior quality color printing, Postscript level 2, 600dpi resolution and 12ppm!

- 600 x 600dpi with Photograde
- 16Mb RAM - exp to 40Mb
- Ethernet as standard

INCLUDES ON-SITE INSTALLATION!!

£4195 APPLE COLOR LASERPRINTER (£4929 INC VAT)

GCC XL608 A3 LASER

AFFORDABLE A3 LASER
The CW recommended GCC Technologies Elite XL608 offers edge-to-edge A3 Postscript laser printing at a great price!!

- 600 x 600dpi with Photograde
- Prints to A3, Ethernet option
- Postscript level 2
- 6Mb RAM exp to 64!

£2099 GCC ELITE XL608 A3 MONO LASER (£2466 INC VAT)

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TOP CW VALUE · NEW 200MHZ MODEL · GREAT BUNDLES · BEST UK PRICES!! · SEE THEM TODAY!!

STYLEWRITER 1200

EXCLUSIVE
THIS PRICE ONLY AT CW!!

APPLE INK-JET LESS THAN £120!!

Here's a genuine Apple Ink-Jet printer which offers laser-like quality at an unheard of price Designed to work specifically with your Macintosh, this printer takes up less space than most other desktop ink-jets and offers 720 x 360dpi resolution with the option of printing 2 or 4-up documents on a single page with enhanced watermark grayscale options. Supplies are now limited and once they're gone the offer will be unrepeatable!

- 720 x 360 dots per inch with superb edge smoothing
- Paper tray holds 100 sheets or 15 envelopes
- 3 ppm in black and white mode
- 64 Scalable True Type fonts included
- Grayshare printing allows network connectivity
- A CW exclusive - you can't buy better!

WHILE STOCKS LAST

£119

STYLEWRITER 1200

EX VAT £140 INC VAT

SCOOP PURCHASE!

PRINTER CONSUMABLES

NOW AT THE LOWEST PRICES EVER IN THE UK!
PLUS CW SPEEDY DELIVERY - CALL US NOW!

COLOR STYLEWRITER 1500

BEST VALUE COLOR INK-JET PRINTER

The whizzy Apple Stylewriter 1500 is a low cost colour inkjet printer that offers laser quality printing at 360 x 360 dpi! Change from Black cartridge to CMY cartridge for amazingly high quality color outputs! Its easy! Now less than £170!!

- 360 x 360 dpi colour/greyscale resolution
- Maximum 100 sheet paper tray
- 64 Truetype fonts included
- Compact/easy to store
- Ethernet & LocalTalk iwth ColorShare
- Easy to use and set-up
- Great quality & low price!

LIMITED STOCKS!

£149

COLOR STYLEWRITER 1500

EX VAT £175 INC VAT

SAVE ££'S @ CW!

COLOR STYLEWRITER 2500

SUPERB APPLE QUALITY CMYK COLOR PRINTING

This economical and compact colour printer from Apple delivers crisp laser quality text, vibrant color and fast drying action due to water and fade resistant inks. CMY and Black cartridges both inside - no need to change!
This printer gets a CW best buy!

- 720 x 360 dpi resolution and up to 5ppm
- Maximum 100 sheet paper tray
- 64 Truetype fonts incl.
- Ethernet and LocalTalk with ColorShare
- Desktop design - internal power supply

£259

COLOR STYLEWRITER 2500

EX VAT £304 INC VAT

SAVE ££'S @ CW!

EPSON STYLUS COLOR 500

PHOTO-REAL QUALITY AT AN AFFORDABLE PRICE!

Just how good can the results from a color ink-jet printer be? Well with CW recommended Epson color printers it's just superb! The NEW Epson Stylus Color 500 features a unique Piezo print head and uses brilliant new inks to deliver 720dpi color on plain paper! Delivers photo-real color output on a wide variety of materials.

- A4, 720dpi color printing up to 4ppm
- Double density blacks for great text & superb greyscale graphics
- Photo-real color all the time
- **A CW BEST BUY at less than £200 it's an absolute STEAL!!**

£199

STYLUS COLOR 500

EX VAT £234 INC VAT

SCOOP PURCHASE!

SAVE ££'S @ CW!

A4 STYLUS PRO

POSTSCRIPT OPTION

PROFESSIONAL CHOICE

720 x 720dpi piezo printhead with unique MicroDot™ ink delivery.

- PostScript Level 2 option
- MicroDot™ -no banding
- MicroWeave™ reinforces photo-real effect where appropriate
- 720 x 720dpi, A4, 3ppm

£320 (£376 INC VAT)

EPSON STYLUS PRO A4

SAVE ££'S @ CW!

A3 STYLUS PRO XL

POSTSCRIPT OPTION

A3 LARGE FORMAT

Ideal for DPS, A3, color proofing and CAD/CAM applications.

- 720 x 720dpi, A3, max 3ppm
- MicroDot™ for quite superb text and graphics with no 'banding'
- Optional Ethernet
- Handles A4, A3, Super A3

£799 (£939 INC VAT)

EPSON STYLUS PRO XL

SAVE ££'S @ CW!

"I love to shop the CW way - phone by 3 and its here next day!"

"Hey Buddy - The deal is yours!"

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DESKTOP SCANNER | FLATBED SCANNER | LOW-COST | HIGH END | 300DPI - 4800DPI

PAPERPORT

THE FASTEST WAY TO GET PAPER INTO THE MAC

The first truly simple, super compact input device that converts your paper documents into electronic ones. It's amazing and so clever!

- **Its always there!** Just plug PaperPort into your Mac's printer or modem ports and then feed in a piece of paper. PaperPort grabs the sheet, scans it and launches the software automatically - there isn't even an ON button!
- **Ultra useful!** As fast as 6 seconds per page, PaperPort displays your documents on the screen even before you've finished scanning them!
- **OCR included!** Plus you can file, edit, annotate, print and even FAX easily!

LIMITED STOCKS! DON'T DELAY SAVE £££'S!

£99 EX VAT £117 INC VAT

VISIONEER PAPERPORT

CONTEST 4800

SCOOP PURCHASE EXCLUSIVE TO CW!

4800DPI, 24-BIT LESS THAN £170!!

At long last there is a user-friendly scanner that produces true-to-life professional scans in a flash and at an ultra-low cost.
The CW exclusive Contest 4800!!
This single pass scanner gives you a razor-sharp scan in no time and with the bundled Color It and OmniPage OCR software (on CD-ROM only) it's ready to become your most productive desktop tool. Just check the spec:

- Genuine 24-bit color scanning (16.7million colors!) for color photos
- 8-bit greyscale scanning (256 greys) for black & white photos
- 300 x 600 optical resolution
- Large 356mm x 216mm scanning area
- 4800dpi x 4800dpi interpolated resolution
- Single-pass and ultra-rapid scanning
- FREE Color It image manipulation software
- FREE ScanWizard plug-in
- FREE OmniPage LE OCR software!!

Note software only available on CD-ROM.

FREE SCAN COLOR IT | FREE SCAN WIZARD | FREE OMNIPAGE DIRECT

SAVE ££'S @ CW@!

£169 EX VAT £257 INC VAT

CONTEST 4800 24BIT SCANNER

SCANMAKER E3

£219 £257 INC VAT
OMNIPAGE LE + SCAN WIZ

EPSON GTX-5000

£249 £293 INC VAT
INC. P.SHOP LE & TEXTBRIDGE

EPSON GTX-8500

£399 £469 INC VAT
INC. P.SHOP LE & TEXTBRIDGE

SCANMAKER E6

£349 £410 INC VAT
OMNIPAGE LE + SCAN WIZ

EPSON GTX-9500

£525 £617 INC VAT
INC. P.SHOP LE & TEXTBRIDGE

UMAX VISTA S6E

£229 £269 INC VAT
GREAT VALUE 600DPI SCANNER

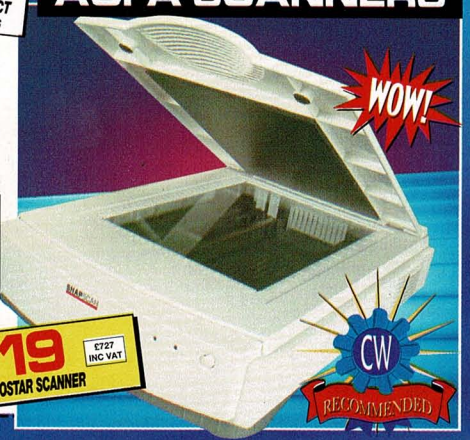
INCREDIBLE VALUE!!

FREE..FREE..FREE.. PHOTOSHOP or LE OMNIPAGE DIRECT WITH ALL AGFA's

AGFA SCANNERS

GREAT DESKTOP SCANNERS!

Agfa Scanners constantly receive rave reviews and are all CW favourites. The new SnapScan is Agfa's low-cost offering with 600 x 300 optical resolution, on-pass scanning & FotoLook, FotoSnap, FotoFlavour, ColorIt and OmniPage LE.



£249 EX VAT £293 INC VAT
AGFA SNAPSCAN SCANNER

£2789 £3277 INC VAT
DUOSCAN 36-BIT COLOR SCANNER

£619 £727 INC VAT
AGFA STUDIOSTAR SCANNER

CONNECTIX QUICKCAM

Everything you need to make movies, take pictures and use video conferencing.

- Ideal for video conferencing
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Requires **NO OTHER HARDWARE!**

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DIMM MEMORY | SIMM MEMORY | P.BOOK MEMORY | HARD DRIVES | CD, OPTICAL, JAZ

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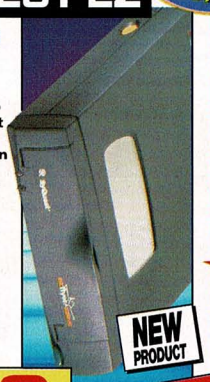

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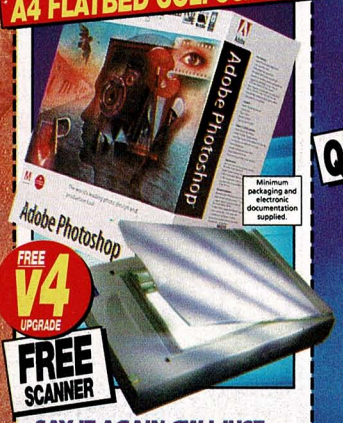

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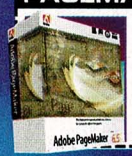

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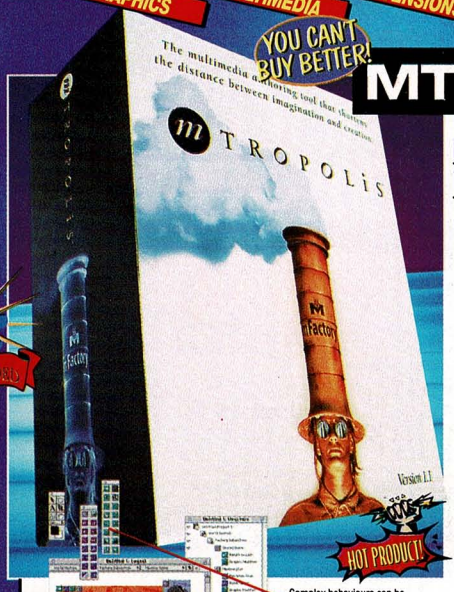
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mTROPOLIS
Version 1.1
HOT PRODUCT!

POWERFUL YET SO EASY

mTropolis is the revolutionary authoring tool which CW reckons will define a new standard for easy multimedia development. Through its object-oriented approach, this powerful application provides CW with amazing flexibility in the creation of his multimedia applications.

The intuitive, graphic authoring process allows even non-programmers to create remarkably compelling interactive experiences. And once a title is authored it can be played back on Mac, Windows and Internet platforms - without further purchase!

- Fully object orientated architecture for unequaled flexibility and reusability.
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- Open and extensible APIs eliminate boundaries to creative development
- Author once, then playback on Mac, Windows - even the Internet.

One to watch - it's gonna be HUGE!

Complex behaviours can be assembled without coding, by simply dropping combinations of pre-built modifiers onto media objects.

A highly-visual WYSIWYG environment provides complete control over graphical layout, letting CW view elements as he constructs them.

GOSH!

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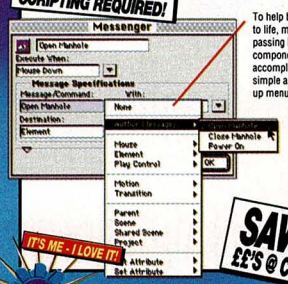

To help bring your title to life, message passing between any component is accomplished through simple and clear pop-up menus.

CROSS PLATFORM

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DIRECTOR CROSSGRADE

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IT'S ME - I LOVE IT!

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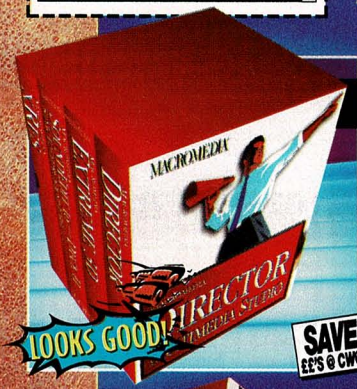

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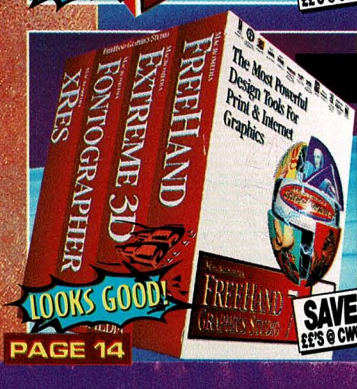

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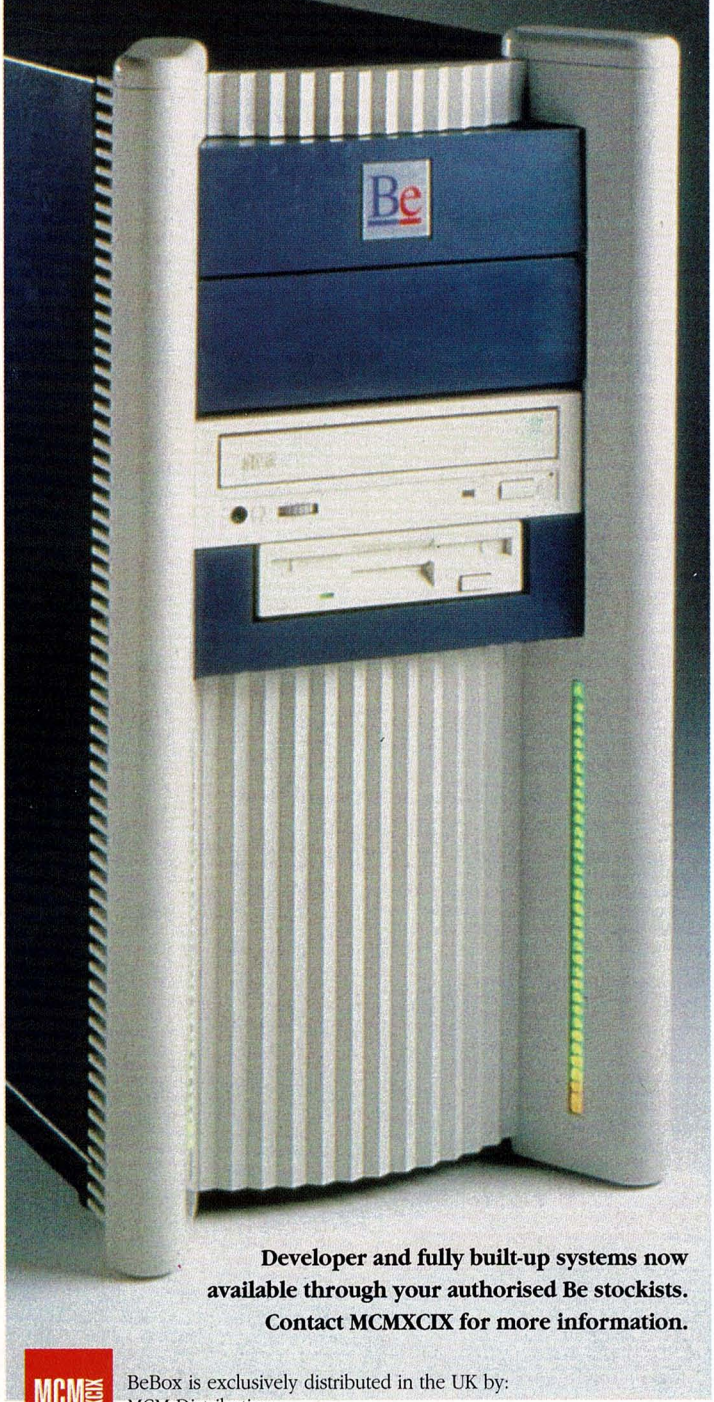

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Cinemania 97

MACFORMAT Classic

This release is sure to please film buffs the world over. From comedy romance to gung-ho fighter movies, it's all here. The ultimate cinema guide? Probably.

When Lenin's Bolsheviks took cinema to rural Russia on their agitprop trains, the peasants were quite taken with the "magic shadows" which danced, skipped and juddered across the screens. It wasn't the revolutionary ideals that had them entranced, nor did they really care for the splendour of the Kremlin. It was the medium itself which got them hooked.

Nigel Hawthorne's star turn in *The Madness of King George* gets a mention in *Cinemania 97*.

Almost a century on, despite television, the Net and computer games, we still love cinema. But today, we have a much broader range of films to choose from than those early Russian film lovers. Hence, we need to know about a large number of movies in order not to waste time on ones we don't like. And that's where *Cinemania* steps in, Microsoft's definitive multimedia film listing.

So, what was the hottest movie of last year? Let's see... *Fargo?* That was pretty good. *Up Close and Personal?* Nah, a bit sappy. *Mission: Impossible.* That will do.

A few clicks, and *Cinemania 97* tells us that *Mission: Impossible* is an action thriller in which Ethan Hunt (Tom Cruise) uses a PowerBook and tries to prevent the theft of computer data by enemy agents. How '90s. Vanessa Redgrave made an appearance, and the film was directed by one Brian De Palma. Click. An acclaimed master of the psychological thriller, De Palma is, according to *Cinemania*, sometimes called a Hitchcock imitator. Click. But isn't artful theft all part of the job? For the disc also states that Hitchcock himself borrowed many of his ideas from the German expressionists – click – who made silent horror classics like the *Cabinet of Dr Caligari* (1919) and *Nosferatu* (1922). Traces of their suspenseful, exaggerated style and deliberately artificial lighting are also to be spotted in the films of Orson Welles. Then again, *Cinemania* says, De Palma might argue that he is an imitator of Eisenstein. Click...

Having begun with a look at *Mission: Impossible* we find ourselves comparing a director of today, who makes sensational action-suspense films, with Eisenstein, whose pictures appealed to the same Russian farmers mentioned earlier. That's how glidingly easy it is to traverse the century of cinema.

Indeed, the disc is so eminently browsable that even those with only a passing interest in movies will see it eat away the hours. This is partly thanks to the high degree of cross-linking between its 20,000-odd film reviews, 4,500 actor and director profiles, plus the numerous in-depth plot synopses and range of articles on cinematic styles. What gives the disc lasting interest, however, is not so much its usability but the volume and quality of the information it contains.

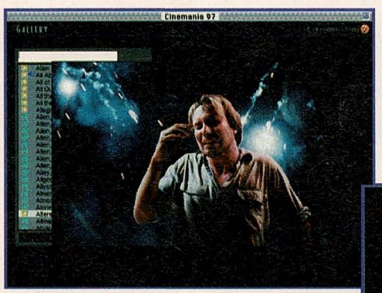
Now, a forgettable film might get slated in two lines. But for an important one you'll probably see a still, reviews from Leonard Maltin, Roger Ebert (America's answer to Barry Norman) and Pauline Kael – and even a plot synopsis from the *CineBooks Motion Picture Guide* also encapsulated on the disc. It's tempting to say that what *Cinemania* doesn't know about films ain't worth knowing.

Blood, blood, lashings of blood. Discover the facts behind the seminal horror movie *Carrie*.

However, while it's huge on Hollywood, the further you travel from LA the less *Cinemania* has to say. The motto seems to be, "If it's not in English, it better be BIG to get in". Still, within those terms, the coverage is pretty broad. While more extreme film-spotters might miss their Kar-Wai Wongs, general movie enthusiasts will still find the Kryzysztof Kieslowskis.

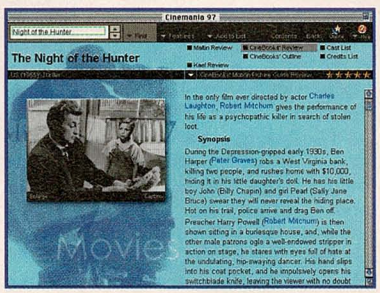
There might be the odd oversight or error – there always are with projects this big – and if you bought the '96 version, you might justifiably have qualms about the outlay as only 87 new films have been added. But with its mix of super-usability and superb in-depth information, plus all those multimedia extras like guided tours, photographs, sound and movie clips, *Cinemania 97* is hard to find serious fault with. Specify a category and it will even suggest a film for you to rent. If, like those early Soviets, you are entranced by the "magic shadows" of the silver screen, get this disc.

GARRICK WEBSTER



In the gallery you can access film stills, movie clips, sound clips and photos of movie people. Here's William Hurt in *Altered States*.

No, I want to know who was playing that velociraptor.



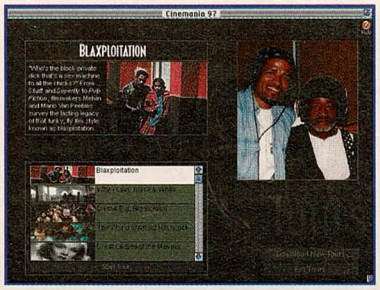
There's an in-depth synopsis of *Night of the Hunter*, in which Robert Mitchum turns in his best, and indeed most terrifying performance.

Going on-line

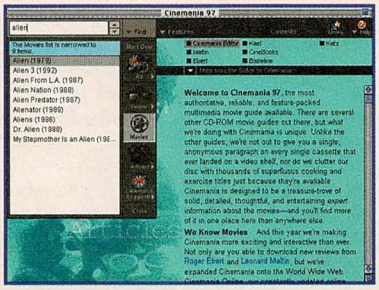
If you do buy *Cinemania 97* and have a modem, you'll be able to download 1Mb of new film information each month via the *Cinemania* Web service. Cool.

Kar-Wai Wong

This in-form Hong Kong director's *Chungking Express* receives a review in *Cinemania 97* mainly because Quentin Tarrantino raved about the film. But is there a director profile? Does Tarrantino work for Disney?



There are eight "guided tours", including "Blaxploitation" with Mario van Peebles.



Cinemania's search facilities are comprehensive. If the film's on there, you'll find it.

Cinemania 97

If you have a CD-ROM drive, £30 and even the slightest of interests in cinema, then this is an essential buy.

MF rating 92%

PRICE	£29.99	**ON SALE**	Now	**CONTACT**	Microsoft on 0345 002000	**WEB SITE**	http://www.musiccentral.msn.com/
MAC	**Processor:** 68030 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.0 • **HD space:** 11Mb • **Screen:** 640 x 480 • **Colours:** 256 • **Extras:** 2x speed CD-ROM drive		

Music Central 97

From Kenny Rogers to the Spice Girls, a whole world of music is crammed into this updated release. It's an essential reference source for all pop trivia kings and queens, but will it make number one on our chart?

Cigarettes are burning low. The glasses on the table are nearly empty, but no-one dares venture to the bar. It's pop quiz night down at the local pub and this time, for once, it seems your team are on a par with the smarmy gang of 30-something know-it-alls who constantly inhabit the corner by the bar. Now, it's the final question and all to play for. The publican clears his throat.

"Who," he bellows, despite the deathly hush that's fallen over the room, "played the spoons on The Pogues' 1988 album *If I Should Fall from Grace with God?*" Killer. And, unbelievably, over in the corner the opposition are nodding knowingly to one another. Lucky you have 10p in your pocket for a phone call, and a brother at home who's this minute looking at your brand new copy of *Music Central 97*.

Just as *Cinemania 97* is your ultimate multimedia film guide, *Music Central 97* is the newly updated version of Microsoft's music-lover's bible – and hence is packed with information on musicians, their albums and the various musical genres. And, just as *Cinemania 97* is pretty much an essential buy for film buffs who don't already own *Cinemania 96*, so the new version of *Music Central* would seem to be just the thing for all lovers of popular music.

Though the number of albums listed has increased from 60,000 to 80,000 with this year's model, in other respects the statistics stay the same. There are 8,000 performer biographies and 5,000 album reviews, many of which are provided by the respected British pop music magazine *Q*. Also in the mix are over 300 articles on musical styles and, of course, those 5,000 musical extras, which include music clips, album covers, musician photos and 40-odd video clips.

All the information is, of course, perfectly cross-linked so that as with *Cinemania*, you can lithely skip around the world of music, following the links you like, learning fact after trivial fact. Equally, with the fast and wonderfully accurate "find" facilities provided, you can get to specific entries with no fuss whatsoever.

On the other hand, should you be feeling particularly open-minded, you might want to let one of seven celebrity guests take you on a guided tour. You might, for instance, want to find out all about modern country with Travis Tritt. King Sunny Ade, meanwhile, will tell you about the rising popularity of World Music. Rock 'n' roll, jazz and modern rock are other options.

These 10-minute tours are quite a good way of showing you areas of the disc you might not otherwise explore and, unlike most guided tours, you can pause the tour at any time to browse the links that appear while the presenter speaks.

However, although it has the same structure and features as *Cinemania*, *Music Central* is slightly less interesting to use. Sure, finding your way around the core of information in the disc can be engrossing. From The Pogues you can go to Kirsty MacColl, who did a song with them. And from her, on to Talking Heads, because she also sang with them. Brian Eno is linked to Talking Heads as their record producer and also to Roxy Music because he was a member of that band. And from Roxy Music you can go to a screen on disco. The trouble is, all this is fringed by a huge amount of useless and/or uninteresting information.

Whereas in *Cinemania* all the 20,000 films reviewed get at least some form of critical appraisal, only 5,000 albums in *Music Central* get reviews. The other 80,000 or so merely feature track and performer listings, meaning this isn't quite the definitive source of information it might be. Whenever you enter the realms of lesser-known artists you'll start hitting these uninspiring lists with depressing regularity. Then again, who knows when you'll need to know that Ron Kavana played the spoons on the Pogues track *If I Should Fall from Grace with God*.

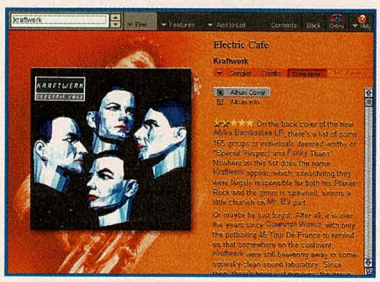
GARRICK WEBSTER

Mellowing now, Ozzy Ozbourne describes his latest catch. No, he didn't bite its head off.

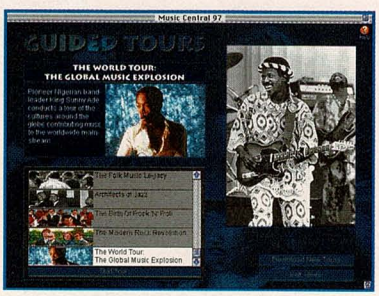
***Q* magazine's review of *Rubber Soul* on CD goes out on a limb and gives the album four out of five.**

The intro screen does come up with some fine suggestions. It's grinning girl, squinting bloke or Van Halen. What's worse?

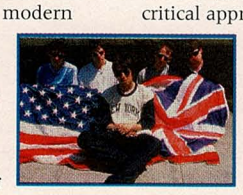
The suggestions option. Select your favourite band and it suggests others you might like – rather like the Similarities Engine at http://www.ari.net/se/



From the Kraftwerk screen and a shot of the Electric Café cover you can go and read a related article on the techno scene.



Guided tours offer themed musical explorations. Here King Sunny Ade takes you on a tour of world music (mainly African).



The punch-ups, alcohol and drugs intake could account for the sparse Oasis discography…

You know Eno

We tested the Brian Eno entry by showing it to his record company, Opal Records. His assistant, Lin Barkas, told us "They got all the important things in, in the right order," but she pointed out that *Music Central* inexplicably spelled Cornelius Cardew, one of Eno's early influences, "Carden", despite getting it right the first time. The Edge is left off a listing of U2 bandmembers on the album *Passengers*, and the entry wrongly says Eno collaborated with Harold Budd on "Plateaux of Mirrors" (it was "The Pearl"). And there's no mention of his book *A Year with Swollen Appendices*, released last May.

Music Central 97

A well-researched and thorough delve into the world of popular music, even if some of the entries do seem quite obscure.

MF rating 85%

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PRICE	£39.99	ON SALE	Now	CONTACT	Creative Wonders on 01753 549442	WEB SITE	http://www.cwonders.com/
MAC	Processor: 68030 • RAM: 4Mb	POWERMAC	Processor: any • RAM: 8Mb	REQUIRES	System: 7.1 • Screen: 640 x 480 • Colours: 256 • 2x speed CD-ROM drive		

ABC of Animals

Animals living on, above and below the land are included in this feast of facts and glorious images. Take a virtual trip to a rather large animal enclosure and learn a thing or two – or just coo at the fuzzy-wuzzy bears...

MACFORMAT Classic

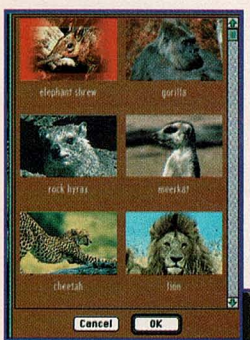
If you wanted to learn about animals, not so long ago, you had maybe three main options: stick to books (informative, but not as educational as seeing for yourself), go to the zoo (now politically incorrect, and you're not viewing the inmates in their natural habitats anyway) or take a safari (a bit costly and time-consuming, at least for most people...). Now there's the CD-ROM alternative.

Although they're a brilliant reference tool, CD-ROMs all too often end up resembling on-screen books. The *ABC of Animals* never makes the mistake of aping paper and ink, and you can be assured of an enjoyable yet informative delve into life on, above and below earth.

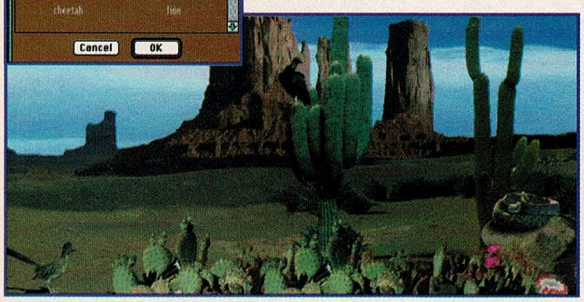
A black vulture on the lookout for dinner – carrion is on the menu.

The *ABC of Animals* places the animal kingdom in a global perspective. The opening screen features a globe across which you can trace the various "biomes" (climate zones) and identify landmarks such as cities, rivers or mountains. The A-to-Z search facility has numerous handy options and is cleverly linked with the globe, with relevant locations being highlighted, whether you select a European hedgehog, the tropical climate, or Mount Etna. This thorough approach to linking is everywhere.

The main body of information lies in the individual entries for each species. Every animal is presented with a photo or QuickTime movie and a basic run down of its living and breeding habits, lifespan and vital statistics. Highlighted words are scattered throughout each entry, linking to an extensive glossary – you can even spend some time scrutinising the taxonomy tree, which classifies animals by species and origin.



Links from each animal's entry offer you a menagerie of other creatures to study as you browse the CD.

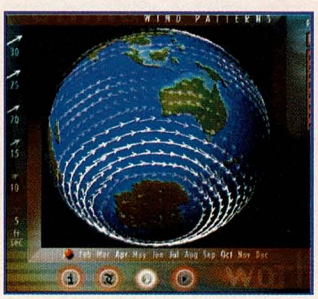


Find out who resides in the desert biorama – click on the animals to hear the sounds they make and link to more information.

Read all about the intriguing chinchilla – find out about its lifespan, breeding habits, food, natural habitat and so on.

From the main screen you can look up animals by country, biome, class and so on – or zoom in on highlighted locations.

You can then visit the biomes section, which deals with the differing climates in the world and shows you which animals live in each, such as tropical rainforest, desert or savannah. Clicking on different animals provides close-up pictures and sound files. The only confusing aspect of the biome is that it doesn't distinguish between different regions, so you can find a cheetah next to an emu in the savannah, despite the fact that one resides in Africa and Asia, while the other belongs in Australia.



There are many excellent movies you can watch, and above is one on wind patterns – but it is an all too brief slice of knowledge.

Meanwhile, numerous QuickTime movies of astonishing quality cover topics such as Communication, Camouflage, Extreme Environments and Finding Food – and climatic factors such as Ocean Currents and Wind Patterns. The life-like standard of these is a highlight of the disc – but these last movies unfortunately tackle quite complex subjects in too short a time to make much sense of the scientific technicalities involved.

The final touch is the statistics section. You might dismiss such things as being the domain of the anoraked, but the facts are stunning. Discover that the spur-thighed tortoise lives for 120 years, while the woodmouse lives for one year, or that the three-toed sloth sleeps for 20 hours a day, the housemartin for three. Then, horrify yourself with country statistics on waste, CFC emissions, and imported and exported animals.

So, are there any problems with this disc? While you really do look at the animal kingdom in a global context, you don't learn much of how these animals interact with or affect each other. Food chains would have been interesting, for instance. And because animals are undeniably photogenic, your trip through this disk will be a series of "oohs" and "aahs", ogling cute bundles of fur: no gory birth or death scenes here.

Every animal covered on the disc comes with a stunning photograph. The royal albatrosses pictured here are getting together for the mating season.

The *ABC of Animals* has been available on the Mac for a while now, but this new, revamped version has turned a good CD into a brilliant one. Beautifully designed and carefully put together, it looks good and has a breadth and authority which guarantee that you won't be bored.

EVA LAUER

ABC of Animals

Covering a wide range of animals across the globe, this CD is educational and a well-designed treat.

MF rating 90%

PRICE	£29.95	**ON SALE**	Now	**CONTACT**	Notting Hill hotline on 01634 297123	**WEB SITE**	None
MAC	**Processor:** 68040 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.1 • **Screen:** 640 x 480 • **Colours:** 256 • 2x speed CD-ROM drive		

The Evolution of Life

Life? Don't talk to me about life. Let biologist Richard Dawkins do the talking in this distinctive CD journey through the genes that make the world go round.

Sometimes you feel you could listen to Richard Dawkins forever. A noted scientist and best-selling author, his book *The Blind Watchmaker* danced with the subject of evolution, the scientific rulebook that has enabled humans to develop from so much frogspawn. In speeches like last year's Dimbleby Lecture, his measured voice eloquently communicates cosmically-sized ideas on a scale your head can cope with.

The Evolution of Life is a further celebration of the poetry in a DNA chain, bringing 3D environments, animation and video to bear on *The Blind Watchmaker's* text. You'll hear about Darwin's theories and see the creatures of the Galapagos Islands that led to his breakthrough, for example; and discover how and why some animals change their appearance and instincts dramatically over just a few generations, while creatures like crocodiles have remained unchanged for millions of years.

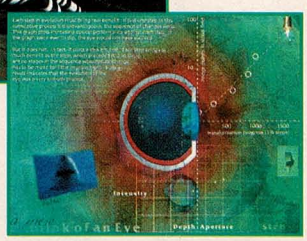
The disc's designers seem keen to live up to the grandeur of Dawkins' subject, with an epic approach to interface design. A program's interface is the connection between it and you, and can take many forms. A set of menus across the screen-top and a row of icons to click on is one interface; an alphabetical list of catalogued subjects you can click on to explore is another.

Based around the "evo-dome", a finely-rendered museum from a future where man has left the Earth behind, *Evolution's* interface is altogether a more ambitious beast. It's a haughty peacock of an interface – a creature of exotic typography and richly-coloured photo-montage, making you gasp at its finery. Approach it, though, and you'll feel its bite.

Richard Dawkins lends his knowledge and insight to this CD-ROM on our evolution.

Evolutionary theory is revelatory and complex in equal measures. You'll need to learn many basic concepts to appreciate the value of the way everything works together so beautifully. Such fundamentals, though, are spread throughout the environment you need to explore, and there's no easy way to gather the information you need the most. The text is divided into sections with evocative labels, which are also meaningless when you're trying to track down a particular item. Examples include categories labelled "Computer Monkey", "Mr Five Per Cent", and "Disappearing into the Twilight". Your guess is as good as mine.

Behind the spectacular appearance of the Taxonomist's Gallery is nothing more special than a multiple-choice quiz.



Some areas of *Evolution* are superb: you can use your mouse to alter the proportions of this eye diagram to see how different animals' eyes work.

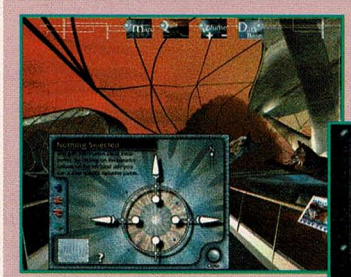
This scattered distribution encourages you to browse the material rather than delve into it. In addition, the interface suffers from designer-itis ("itis", of course, is an inflammation or swelling). You need to learn a different control system for each distinct section of the program, and the purpose of many controls and icons is unclear. Some controls, like the main menu options as you wander around the evo-dome, are hidden from view until you move your mouse into the right area of the screen. Pretty, yes, but not useful.

One other point: of course the program was designed and assembled by humans, barely-evolved apes that we are. So there are many places you might forgive a touch of human error; but a map that's missing some of the descriptions supposed to explain this patchwork of an interface is not one of them. You don't expect to find a caption reading "description here please". Oops.

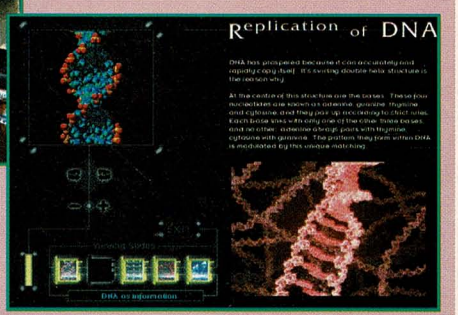
After the effort of finding pages of information in *Evolution*, you find that many of them are lovely but lacking in hard facts.

The material in *The Evolution of Life* is teeming with compelling surprises, and it's not a bad disc, just one suffering from ill-matched style and content. This means you won't get the full enjoyment out of either aspect that the effort put into both deserves. Notting Hill's ambitious techniques need to evolve themselves or risk extinction at the hands of leaner, fitter rivals. **RICHARD HILL**

Secrets of Evolution



Left: The spectacular evo-dome is where you track down information on evolution. The top-of-screen controls reveal the evo-dome map and the database.



Above: *Evolution's* text pages take you through the principles behind evolutionary theory, drawing on specific examples to illustrate the uses and purposes of DNA, genes and sex among others.

Above: The database is an alternative route through Dawkins' text, but it's not easy to use when many of the subjects are described in decorative, not utilitarian fashion.

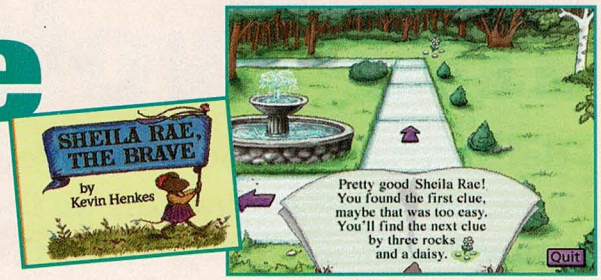
The Evolution of Life

Stimulating, fact-packed and ambitious, but the confusing design and interface let it down badly.

MF rating 72%

PRICE	£25	**ON SALE**	Now	**CONTACT**	Brøderbund on 01429 273029	**WEB SITE**	http://www.broderbund.com/
MAC	**Processor:** 68030 • **RAM:** 4Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.0 • **Screen:** 640 x 480 • **Colours:** 256 • **Extras:** CD-ROM drive		

Sheila Rae the Brave


SHEILA RAE, THE BRAVE
by Kevin Henkes
Pretty good Sheila Rae! You found the first clue, maybe that was too easy. You'll find the next clue by three rocks and a daisy.
Quit

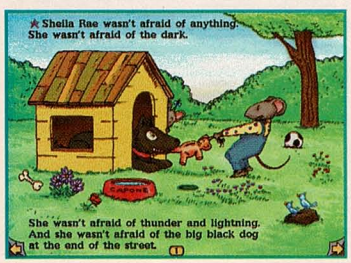
Sheila Rae the Brave **offers an entertaining tale, plus songs and this pleasant diversion of a treasure hunt through a park.**

This is the story of loud-mouse Sheila Rae, who strikes out on a path of individuality and suffers the consequences. It's a story with a moral...

ON THE CD
Exclusive interactive demo

This is a tale of two little mice (perhaps we should call it a tail, then) named Sheila Rae and Louise. Although they're sisters, they're very different: Louise is only young and has a young girl's wariness, but her big sister is bold and brave. She laughs at the fierce thunderstorm, sleeps soundly with the lights turned off and growls at unsuspecting stray dogs as they pass by. If something in her life poses a question, Sheila Rae has an answer.

For this, some might adore her precocious charm; or you might just call her an annoying brat. *Sheila Rae the Brave* tells the story of these two mice, and what happens the morning when Sheila Rae's boldness goes too far. One day, you see, Sheila Rae decides to take a different route to school. This, don't forget, is a little mouse who dares to step on the cracks in the pavement, which *everybody* knows is bad luck. Everything is fine at first, with Sheila Rae her usual brash self as she walks along, but then she realises that she has no idea where she is...


Sheila Rae wasn't afraid of anything. She wasn't afraid of the dark.
She wasn't afraid of thunder and lightning. And she wasn't afraid of the big black dog at the end of the street.

Sheila Rae's story is told with delightfully illustrated pictures and brisk narration.

You read about this sorry state of affairs through brisk and elegant writing, laid out across a series of on-screen pages. You can let the disc play the story itself – it lasts about 15 minutes – or move through the pages one at a time; they conceal animated surprises which your children can find if they explore the screen with their own mouse. It's a format that will be familiar if you've bought a couple of storybooks before.

The story is told with the light touch of refreshing watercolour illustrations and chirpy, confident narration and music. The makers are not afraid to inject just a little darkness into this confection, though: Sheila Rae's dinner-table association of cherries with "dead bear eyes" prefaces the thoughts which take over once she finds herself lost and alone, imagining spooky, unknown creatures out in the dark.

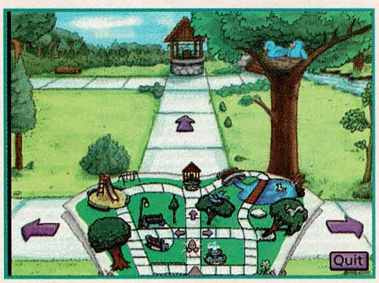
Today's parents, of course, have their own fears of what waits when their child strays off the well-trodden path. The simple tale here resonates with both young and old – but thankfully the reasons each feels its lesson remain separate. The child's fear is one born of innocence, the parent's comes from too much knowledge.

Our mousey heroine learns she is not really so brave after all; it's her intelligence and common sense, telling her how far she can go, which makes her seem full of courage in the eyes of others. Lose sight of that, Sheila Rae, and you too feel afraid and vulnerable.

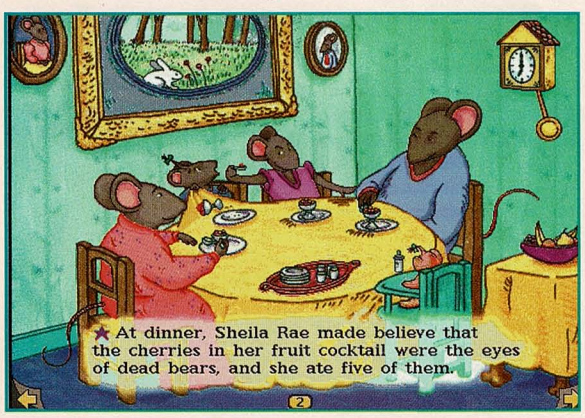
Like any good story, you see, *Sheila Rae the Brave* is surprisingly complex underneath its honey-sweet exterior. It's also accompanied by extra activities: in the Map Game, you help Sheila Rae follow the clues around the park in search of the landmark that hides the next clue, on a trail leading to a nice surprise. The game's implicit message is to encourage Sheila Rae (and your child) to explore her world more safely. You can also enjoy seven songs to sing along to, from the triumphant salsa of "I Am Brave" to the sugariness of "All Alone" to the oompah weirdness of "My Life's a Dog".

Sheila Rae the Brave is a delightful disc with a single failing: you won't feel there's enough here. The company of the mice is so pleasant that you'll want a little more before having to repeat things you've already seen, and with only half the CD-ROM space actually being used, you'll be left wishing the creators had devised some more material.

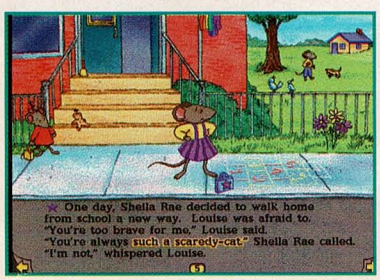
RICHARD HILL



The game teaches young children very basic deduction skills as they follow the messages to different landmarks.


At dinner, Sheila Rae made believe that the cherries in her fruit cocktail were the eyes of dead bears, and she ate five of them.

Sheila Rae the Brave **has a story full of charm and pictures you can explore: use your mouse to find hidden animated clips.**


One day, Sheila Rae decided to walk home from school a new way. Louise was afraid to. "You're too brave for me," Louise said. "You're always such a scaredy-cat," Sheila Rae called. "I'm not," whispered Louise.

While Louise is meek and timid, her sister Sheila Rae is a bold, brash mouse – but is she really as brave as she seems?

Sheila Rae the Brave

An eloquent story with a strong central moral running. A bit short on material.

MF rating 79%

The CD-ROM gives you seven songs in three languages to sing, with moods ranging from ebullient to mournful.

PRICE	£19.99	**ON SALE**	Now	**CONTACT**	ABLAC on 01626 332233	**WEB SITE**	http://www.davd.com/
MAC	**Processor:** 68040 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.1 • **Screen:** 640 x 480 • **Colours:** 256 • **Extras:** 2x speed		
CD-ROM drive • QuickTime 2.0 (included) • QuickTime PowerPlug (included for PowerMac only)				**AGE RANGE**	Three to eight		

After the Beanstalk

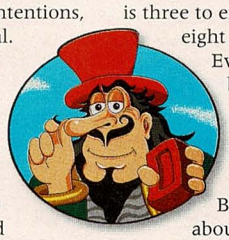
Have you ever wondered just what did happen after the giant had been well and truly scuppered? Now you can discover what young Jack got up to after those infamous beanstalk antics with this new interactive storybook.

Sequels, in general, are not a good idea. As those who have sat vacantly through *Beverley Hills Cop 2* or the inevitable Coca-Cola™ Cup Replay can attest, reheated leftovers do not a filling meal make. After all, while there might have been material left over, you didn't catch The Bard knocking out a quick *Hamlet: The Early Years*...

But children do not come equipped with such world-weary cynicism – and thus *After The Beanstalk*, the latest in Davidson's Puddle Books range, is an interactive update on the activities of that original green-fingers, Jack. Carping aside and, with a eye to some of the less inspiring interactive storybooks, this is one sequel that could work – tried and tested characters, strong moral lessons already impregnated in the minds of the nation's youth, plus all the appeal that technology and an attractively up-to-date approach can add for the modern parent and child.

As you'd expect with such copyright-free characters, everything's in place. Jack's been elected Town Mayor, the Giant has decided that being on solid ground is better than fee-fi-fo-fumming around the clouds and the goose still lays grade A golden eggs. Unfortunately, with political responsibility comes enemies, and Bixby The Bean Seller, all Captain Hook moustache and roguish intentions, is out to hijack the town festival.

It's an entertaining storyline that, narrated by either Richardson J Rabbit, P J Puddles or Grandmother Casey, lasts for 15 pages. Each page includes a "jump-in scene" where, with the appearance of a frog cursor, your child can enter the story and click around. So it's amusing animations at the jab of a mouse, yes? Of course. Windows fly open and characters trip up, but there's far more to *After the Beanstalk*. Cupcakes can be decorated with candy dinosaurs, songs are waiting to be sung and, thanks to Crazy Clem the clumsy chef, falling cupcakes mean a bizarre, culinary version of the *Breakout* arcade game – you have to catch the sweet offerings in your baking tray.



Generally amusing – Miss Truckles' hairdo takes on medusa properties when hit by Bixby's bricks – and always pertinent, such activities are sure to keep your child turning those pages. Of course, once you've seen one game of "Put the Hat on Bonnie the Cow", you've seen them all. *After the Beanstalk* needs more to prevent it going the way of most sequels – but at least the Magic Bean Hunt goes some way towards meeting this demand.

Beanella, Beano, Beanster, Beandexter and the Mexican jumping Beanito are a quintet of mystical pulses hidden within certain scenes and, once you're alerted by the cursor changing into a wand, it's up to you to drag and drop them into a bean bag. Without the full complement of beans, the festival's finale cannot be completed and bedtime will be delayed – and it's likely to continue that way as, each time a story is started, the beans change their hiding place. This is a nice touch – and a necessary one, especially given the increasingly high standard of edutainment these days.

But what of the story? Bixby's plans are foiled, he must wear the Silly Hat and suffer the ignominies of the Dunking Booth (you get to fire the rocks at the target!) and Mayor Jack goes to bed a happy town leader.

It's all simple, accessible fare and will undoubtedly entertain younger Mac users, as well as reinforce their story-telling skills. But although the age range is three to eight years, any self-respecting eight year-old will soon be bored. Even with those page-jumping beans, *After The Beanstalk* is an eminently exhaustible affair. Where are the "Colour The Giant" paint packages? What of the "Count The Beans" number games? How about a simple option to call up the original text for a bedtime treat? All sadly remain in exactly the same place that made *Jack & The Beanstalk* the fairy tale staple it remains today – the imagination. With better storybooks waiting to take that post-Yuletide gift voucher, maybe a copy of the original fable is a more imaginative Christmas gift after all.

MIKE GOLDSMITH

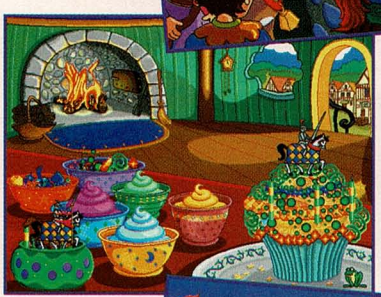
After the Beanstalk

Fun enough, but easily exhaustible – more suited for younger kids. And do you really care what happened afterwards?

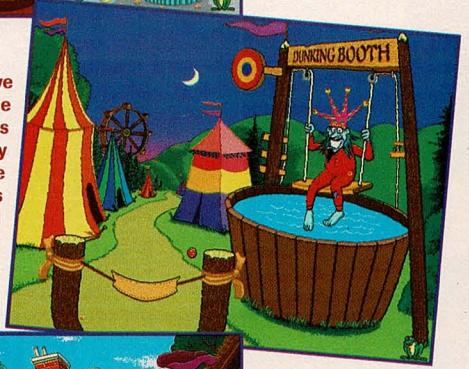
MF rating 70%

Everyone was watching the window but Beanito was hiding in the cupcake. Drag and drop him into the bean bag.

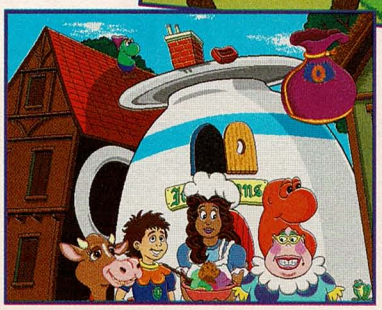
Even dancing beans can't cheer up Bixby. Possibly something to do with his "rave" headgear...



Add on all manner of bizarre decorations to your cake but watch out for the ever-lurking Bixby.



Attractive though those long-johns might be, they won't save Bixby from his freezing cold fate. Take aim...



Bixby's scarpered after his attempts to give Miss Truckles a brand-new hairdo. Maybe that floating magic bean's good with curlers...

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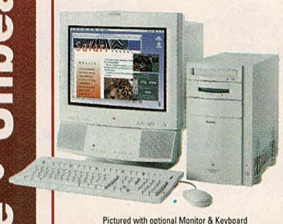
POWER MACINTOSH HARDWARE & BUNDLES

PowerMac 8200/120



- 120MHz Motorola PowerPC 601 Processor (on upgradable daugtherboard) • 256k Level 2 cache
- 16Mb RAM • 1Mb VRAM • 1.2Gb Hard Drive
- 8x Speed CD ROM Drive
- 3 PCI expansion slots

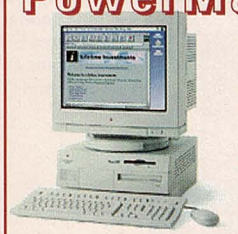
Preloaded with MS Office 4.2.1

PowerMac 8200/120 16/1200 8xCD — only £1199

Bundle Options	16Mb	32Mb
with 15" monitor & keyboard	£1473	£1527
with 17" monitor & keyboard	£1653	£1707

Pictured with optional Monitor & Keyboard

PowerMac 7600/132



- 132MHz Motorola PowerPC 604 Processor (on upgradable daugtherboard) • 256k Level 2 cache
- 16Mb RAM • 2Mb VRAM • 1.2Gb Hard Drive
- 8x Speed CD ROM Drive
- 3 PCI expansion slots

Preloaded with MS Office 4.2.1

PowerMac 7600/132 16/1200 8xCD — only £1625

Bundle Options	16Mb	32Mb
with 15" monitor & keyboard	£1899	£1953
with 17" monitor & keyboard	£2079	£2133

Pictured with optional Monitor & Keyboard

PowerMac 8500/180

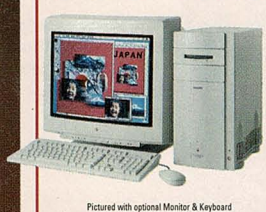
- 180MHz Motorola PowerPC 604e Processor (on upgradable daugtherboard) • 256k Level 2 cache
- 16Mb RAM • 2Mb VRAM • 2Gb Hard Drive
- 8x Speed CD ROM Drive
- 3 PCI expansion slots
- Composite and S-Video inputs/outputs

PowerMac 8500/180 16/2000 8xCD — only £2279

Bundle Options	16Mb	32Mb
with 17" monitor & keyboard	£2744	£2798
with 20" monitor & keyboard	£3114	£3168

Pictured with optional Monitor & Keyboard

PowerMac 9500/200



- 200MHz Motorola PowerPC 604e Processor (on upgradable daugtherboard) • 512k Level 2 cache
- 32Mb RAM • 2Mb ATI Video Card • 2Gb Hard Drive
- 8x Speed CD ROM Drive
- 6 PCI expansion slots

PowerMac 9500/200 32/2000 8xCD — only £2649

Bundle Options	32Mb	64Mb
with 17" monitor & keyboard	£3143	£3281
with 20" monitor & keyboard	£3153	£3651

Pictured with optional Monitor & Keyboard

PowerMac 9500/180 MP

- 2 x 180MHz Motorola PowerPC 604e Processor (on upgradable daugtherboard) • 512k Level 2 cache
- 32Mb RAM • 2Mb ATI Video Card • 2Gb Hard Drive
- 8x Speed CD ROM Drive
- 6 PCI expansion slots

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Bundle Options	32Mb	64Mb
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with 20" monitor & keyboard	£4157	£4295

Pictured with optional Monitor & Keyboard

PowerMac 9500/200 VAR

- 200MHz Motorola PowerPC 604e Processor (on upgradable daugtherboard)
- 512k Level 2 cache • 2Mb ATI Video Card • 8x Speed CD ROM Drive • 6 PCI expansion slots

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Pictured with optional Monitor & Keyboard

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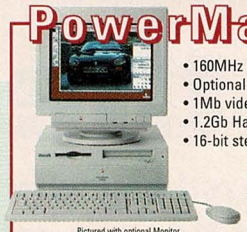

- 160MHz Motorola PowerPC 603e Processor
- Optional 256k Level 2 cache • 16Mb EDO RAM
- 1Mb video EDO DRAM • 3 PCI expansion slots
- 1.2Gb Hard Drive • 8x Speed CD ROM Drive • 2D graphics acceleration
- 16-bit stereo audio input/output • AppleDesign™ keyboard & Mouse

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with 15" monitor	£1049	£1112

Pictured with optional Monitor

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- AppleDesign™ keyboard & Mouse

Performa 6320/120

Pictured with optional Monitor

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- 12Mb RAM
- 2Gb Hard Drive
- 8x Speed CD ROM Drive
- Design keyboard

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Performa 6320/120 12/2000 with 14" monitor — only £1011

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- PCI expansion slot • Integral 15" monitor • Design keyboard

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Performa 5400/180 16/1600 with V-in-TV — only £1597

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- 8x Speed CD ROM Drive • Internal 28k8 voice/fax/modem

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Performa 6400/200 16/2400 with 15" AV monitor — only £1794

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- 256k Level 2 cache • 24Mb RAM • 2.4Gb Hard Drive
- 8x Speed CD ROM Drive • Internal 28k8 voice/fax/modem
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- Avid Cinema Video Editing Suite • Design keyboard

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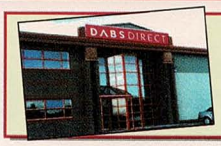

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APUS 2000/166MHz
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APUS 3000/200MHz

UMAX

Mac OS PowerPC

UMAX APUS 2000/166MHz £849

- 166MHz PowerPC 603e
- 1.2Gb fast SCSI hard disk
- 8-speed SCSI CD-ROM
- 2 PCI slots (1 full length, 1 half length)
- 256K Level 2 cache socket (upgradable to 1Mb)
- 16Mb RAM (expandable to 272Mb - 2 DIMM slots)
- Built-in stereo sound
- MacOS 7.5.3

UMAX APUS 3000/200MHz £1299

- 200MHz PowerPC 603e
- 2.1Gb fast SCSI hard disk
- 8-speed SCSI CD-ROM
- 3 PCI slots (2 full length, 1 half length)
- 256K Level 2 cache socket (upgradable to 1Mb)
- 16Mb RAM (expandable to 272Mb - 2 DIMM slots)
- Built-in stereo sound SRS 3D surround sound
- MacOS 7.5.3

UMAX PULSAR 166MHz £2195

- 150MHz PowerPC 604
- 2Gb fast SCSI hard disk
- 8-speed SCSI CD-ROM
- 6 PCI slots
- 512K Level 2 cache (upgradable to 1Mb)
- 16Mb RAM (expandable to 1.04Gb)
- 128-bit graphics accelerator with 2Mb VRAM
- MacOS 7.5.3

UMAX PULSAR 200MHz £2595

- 180MHz PowerPC 604e
- 2 Gb fast SCSI hard disk
- 8-speed SCSI CD-ROM
- 6 PCI slots
- 512K Level 2 cache (upgradable to 1Mb)
- 16Mb RAM (expandable to 1.04Gb)
- 128-bit graphics accelerator with 2Mb VRAM
- MacOS 7.5.3

UMAX PULSAR 225MHz £2995

- 200MHz PowerPC 604e
- 2 Gb fast SCSI hard disk
- 8-speed SCSI CD-ROM
- 6 PCI slots
- 512K Level 2 cache (upgradable to 1Mb)
- 16Mb RAM (expandable to 1.04Gb)
- 128-bit graphics accelerator with 2Mb VRAM
- MacOS 7.5.3

Mac OS PowerPC

100% compatibilty
100% value
100% performance

Thinking Macs... think UMAX

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	72pin SIMM	168pin DIMM
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8Mb	24	29
16Mb	54	51
32Mb	99	105
64Mb	-	199

	VRAM	Cache RAM
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512k	19	135
1Mb	55	-
2Mb	185	-

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Newton Message Pad 120 v2			335
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All inc cable, software & 1 cartridge

StarMax™

Pictured with optional Monitor

StarMax 3000 Systems

	StarMax 3160 Desktop	StarMax 3160 Mini Tower	StarMax 3200 Desktop	StarMax 3200 Mini Tower
Processor	160MHz PowerPC 603e	160MHz PowerPC 603e	200MHz PowerPC 603e	200MHz PowerPC 603e
Memory	16Mb upgradable to 160MB	32Mb upgradable to 160MB	16Mb upgradable to 160MB	32Mb upgradable to 160MB
VRAM	1Mb upgradable to 4Mb	1Mb upgradable to 4Mb	1Mb upgradable to 4Mb	1Mb upgradable to 4Mb
Hard Disk	1.2Gb	2.5Gb	1.2Gb	2.5Gb
PCI Slots	3	5	3	5
Drive Bays	2 External, 1 Internal	3 External, 2 Internal	2 External, 1 Internal	3 External, 2 Internal
Price	£1099	£1349	£1399	£1649

StarMax 4000 Systems

	StarMax 4160 Desktop	StarMax 4160 Mini Tower	StarMax 4200 Desktop	StarMax 4200 Mini Tower
Processor	160MHz PowerPC 603e	160MHz PowerPC 603e	200MHz PowerPC 603e	200MHz PowerPC 603e
Memory	16Mb upgradable to 160MB	32Mb upgradable to 160MB	16Mb upgradable to 160MB	32Mb upgradable to 160MB
VRAM	2Mb upgradable to 4Mb	2Mb upgradable to 4Mb	2Mb upgradable to 4Mb	2Mb upgradable to 4Mb
Hard Disk	1.2Gb	2.5Gb	1.2Gb	2.5Gb
PCI Slots	3	5	3	5
Drive Bays	2 External, 1 Internal	3 External, 2 Internal	2 External, 1 Internal	3 External, 2 Internal
Price	£1995	£2299	£2295	£2495

All models include: 256k Level 2 Cache, Internal 1.44Mb SuperDrive, Internal 8x CD-ROM Drive, Stereo 16-Bit Sound I/O, Keyboard & Mouse, Five-Year (1st year on-site) Manufacturer's Warranty.

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AGFA The complete picture.

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EPSON GTx-9500

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- SCSI interface
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- Optional transparency unit and document feeder
- 1 year RTB warranty

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GTi 8500	£510	GTi 9500	£630
Document Feeder	£319		

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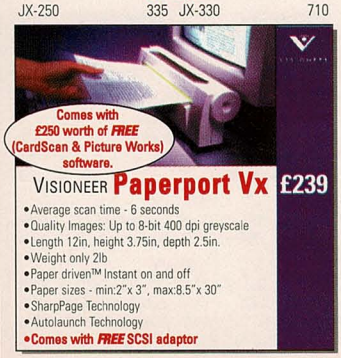

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Award winning Magicscan Software

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Plug-in = VistaScan Photoshop Plug-ins
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Pro = Full Photoshop & Transparency Adaptor

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DAYNA

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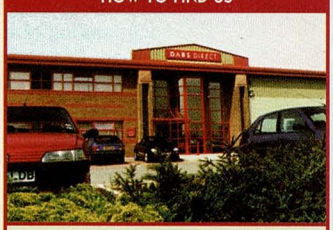

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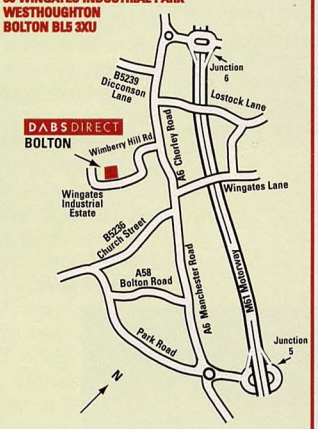

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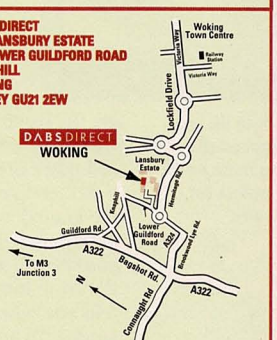

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PRICE	£29.99	**ON SALE**	February 1997	**CONTACT**	J M Interactive on 01703 650759	**WEB SITE**	http://www.questworld.com/
MAC	**Processor:** 68030 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.0 • **Screen:** 640 x 480 • **Colours:** 256 • 2x speed CD-ROM drive		

Cover-up at Roswell

Aliens in a game, again? At least this time you're not just shooting them. Join TV cartoon hero Jonny Quest and tour the world in search of alien artefacts...

You've seen the documentaries. You've seen the footage of an alien being dissected. You've seen *Independence Day*. The Roswell incident – the supposed crash-landing of an alien craft in New Mexico – has certainly spawned one kind of invasion, and it's no surprise to find it has got its tentacles into the multimedia world.

J M Interactive is distributing *The Pandora Directive* and *Cover-up at Roswell*, both from Virgin. Part of the *Jonny Quest: the Real Adventures series*, these kids' games are based upon the 1970s cartoon character, still to be seen on the Cartoon Network satellite channel and the BBC. Needless to say, no self-respecting hero can afford to miss the opportunities on offer at Roswell for some gung-ho adventure.

Negotiate the maze of games in *Cover-up at Roswell* to aid your quest for alien artefacts.

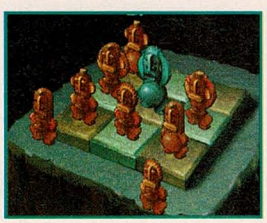
In *Cover-up at Roswell*, you control Jonny and the Quest Team as they try to find five pieces of alien debris from the crash-landed spacecraft which have been scattered across the globe. These must be found before the evil General Tyler and his Men in Black – in charge of the mysterious Area 51, where the craft is kept – get to them.

Aim... fire! Pit your wits against the moving mice and score points for your team.

Before you can go anywhere at all, however, you have to get the computer belonging to Dr Benton Quest (ho ho!) up and running. The computer is riddled with viruses (must be a PC), and you are presented with three moderately cerebral puzzles to crack in order to get it going. You can then read your e-mail and import video footage of the crash into the "hologlobe", which tells you where the five pieces have landed. To begin with, the computer can only calculate two of the sites, so your first mission is a choice between Manhattan and Peru. Either way, it's a jungle out there!

The game essentially consists of introductory movie sequences followed by interactive maze-negotiation punctuated by occasional puzzles. The movies – which really capture the TV cartoon feel – are a little grainy, but they are large and the animation is very quick and smooth. The soundtrack is also very atmospheric, although when the movies are over and you're in charge, the background music can be intensely irritating: endless drum beats or repetitive suspense rhythms.

Controlling the Quest team is generally limited to deciding which way they're going to go next (with the mouse), and rather than scrolling through the landscape you are simply presented with a still for each location. These are tastefully done on the whole, and the dialogue can be very amusing: the character with consistently the best lines is Dr Quest's lab assistant Hadji Singh, who comes up with gems such as "Pardon my hesitancy to proceed into the bowels of New York City."



Make your move, and prove your detective-like skills in order to help your team.

Now and again, there's a little more action: on arriving in New York, for example, you have to land your helicopter on a rooftop, and in Peru you must navigate your raft through the rapids. "Rapids", alas, is something of a misnomer, as these game elements are pretty sluggish. To help you find the alien objects, you have a radiation tracking device and a Global Positioning Unit. These are tastefully done, but they seem a bit unnecessary, and calling them up slows the gameplay.

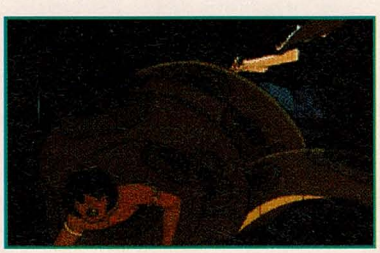
Cover-up at Roswell is certainly aimed at younger players, but they may tire of it quickly. Any fully paid up member of Generation X will greatly enjoy sitting back and watching the movie sequences with a nostalgic sigh and a Pot Noodle™, but kids are likely to expect more action. The interface is beautiful to look at, but performing simple tasks such as saving and restoring games (absolutely necessary, given the size of the game) really gets on your nerves after a while – it's just too fiddly and time-consuming.

There's plenty to explore – after the two locations listed above you've still got Tanzania, Bermuda and Utah, as well as Area 51 itself, to investigate – but it will take a lot of patience. At the end of the day, it's a very simple old-style adventure game, hidden underneath some very flashy clothing. **ANDREW CHAPMAN**

Paddle your way through the mazes and solve the puzzles to continue your search...

Choose between Peru and Manhattan to begin with – don't forget your compass!

The interface is both colourful and easy on the eye, but even something as simple as saving your game position can be time-consuming.



The introductory movies are atmospheric, and the animation is smooth and slick.

More!

If you want to see more of Jonny Quest and his chums The Quest Team, visit their Web site at **http://www.questworld.com/** The Jonny Quest cartoon series is being shown from time to time on BBC1 and the Cartoon Network.

Cover-up at Roswell

A game aimed at kids, with a genuine cartoon adventure feel, but too slow and fiddly, and probably too cerebral, for young players

Graphics	**80%**
Sound	**77%**
Gameplay	**70%**

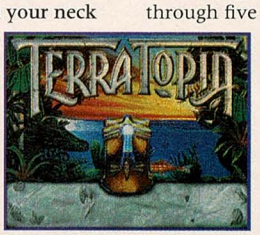
MF rating 74%

PRICE	£29.99	**ON SALE**	February 1997	**CONTACT**	J M Interactive on 01703 650 759	**WEB SITE**	http://www.vsv.com/
MAC	**Processor:** 68030 • **RAM:** 8Mb	**POWERMAC**	**Processor:** any • **RAM:** 8Mb	**REQUIRES**	**System:** 7.0 • **Screen:** 640 x 480 • **Colours:** 256 • 2x speed CD-ROM drive		

TerraTopia

Fall in as the newest Terratrooper in town and join in the good fight against eco-disaster. With the help of a magic key, this could be your 15 minutes of fame...

Beneath an alien sky you stand on the strange shores of TerraTopia, summoned by the ancient ones. These particular oldies are not bothered with anything so mundane as filling hot water bottles and making another cup of tea. No, there are worlds to be saved and as the newest addition to the team of Terratroopers, the job is yours. Armed with a flimsy handbook and a real "totem" to hang around your neck (the latter looks like a cross between a dragonfly and an old Ford Cortina ignition key on a black string), you'll find little comfort in team spirit. That's because no sooner do you land on TerraTopia than all your mates are spirited away and you're left to your own devices.



***TerraTopia* is adapted from an award-winning series of children's graphic adventure novels. However, this version is more spontaneous and rewarding.**

You soon discover that this strange world is actually an island with a startling array of geographical features and climatic conditions, from the Dinotropics through the Minotaur's Veldt and the Lake of the Moon to the Kingdom of the Frost Giants. The scenery is lusciously realised through stunning Hanna-Barbera-style illustration and typically slick animation. But while it basks, resplendent in its prettiness, there's a lot more to *TerraTopia* than meets the eye.

From the moment all your friends disappear, you realise that everything on the island is a puzzle, and in true adventure gaming style your progression is a battle of wits, logic and skill. *TerraTopia* is aimed at eight-to-twelve year olds and while it'll prove too tricky for younger ones in the age group to tackle single-handedly, the game provides a lot of good clean family fun. Also, parents will get every chance to become supremely embarrassed and humiliated when they can't make the connections as quickly as their ten-year-old offspring.

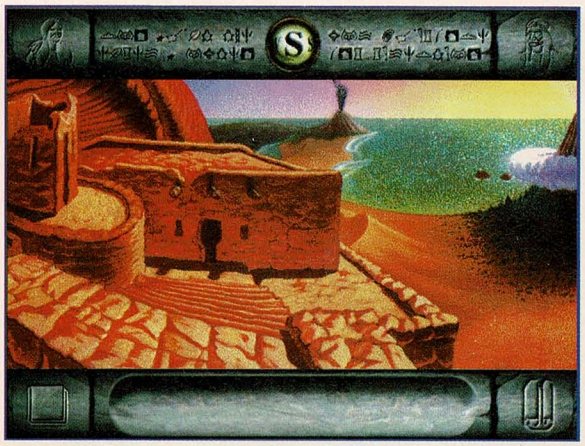
The adventure itself revolves around the solving of puzzles which lead through five different levels of the game. Successful completion of each level results in a "totem" being found and the materialisation of the corresponding member of your team. While it is possible to play through the game quite quickly, you'll need to take time and care to study all the environments around you as you go, or otherwise you won't have amassed enough knowledge to complete the final challenge, once the team is all back together again.

As a learning tool, the kind of logical thinking and puzzle solving skills that *TerraTopia* promotes and teaches are far more valuable than the snippets of eco-friendliness sprinkled about the place – and as the plot unfolds it transpires that everything has an ecological twist to it. You can guess as much from places on the map like Rainbow Glen and Crystal Cave, but the idea behind the game is to instill a worthy dose of eco-awareness into your fascinated offspring. They'll learn amazing facts, such as that wild fig tree roots burrow up to 400 feet underground and a howler monkey can be heard up to ten miles away.

A nice touch is that everything written down anywhere on the island is in hieroglyphics and you have to decipher them to find out some of the vital clues. Your kids will love this, and it's amazing how quickly they'll become fluent without having to refer back to the handbook.

But of course, what every good story needs is a bad guy, and this one comes in the shape of the wolf-like Coyote trickster, who skulks around trying to cause a little mischief and mayhem at every turn. There's nothing seriously sinister, which will be an upset to older members of the target age range, but at least there's not a total absence of malice.

Start here, or resume any number of old adventures. A crumpled up old map is the obvious prelude to any journey.



A panting climb up the longest rope ladder you've ever seen brings the reward of a secret mountain-top village to explore.

Overall, *TerraTopia* looks very impressive, with the story set against a backdrop of over 200 very stylish hand-painted scenes. Almost as good is the Hanna-Barbera TV-style animation, mainly used as a reward when you've solved a puzzle. The gameplay, however, isn't quite up to the same standard. There's nothing awful about it, but some of the puzzles are a bit pointless and others are just a little too annoying and pernickety. This may affect whether you and your offspring will return to this game in a hurry – a major buying point. Still, if you want a stylish adventure game that your family can work and play through together, this is a prime candidate. **MATTHEW RICHARDS**

Inside a village hut hewn from rock is one of the game's first puzzles. If you didn't take the time to look at (and remember) the planetary constellation on the way, you'll have to go back and do it now.

TerraTopia

A stylish and educational game with lavish animation, but the gameplay could eventually become a tad wearing.

Graphics	**82%**
Sound	**69%**
Gameplay	**70%**

MF rating 73%

Included in the package is a picture book full of stuff you'll need. Lots of animals seem to be perceptive or free-spirited...

Additionally...

For slightly younger players of seven and over, Virgin is also releasing *Mysterious Island* in which "a harmless balloon ride ends up as a race against time and hot lava". Virgin has also released *Jonny Quest: Cover-Up at Roswell*. See our review opposite.

PRICE	£58.75	**ON SALE**	Now	**CONTACT**	Softline on 0181 401 1234	**WEB SITE**	http://www.softline.co.uk/
MAC	**Processor:** 68040 • **RAM:** 6Mb	**POWERMAC**	**Processor:** any • **RAM:** 6Mb	**REQUIRES**	**System:** 7.1 • **HD space:** 14Mb • **Screen:** 640 x 480 • **Colours:** 256		
Extras: 2x speed CD-ROM drive • Sound Manager 3.2.1 (included on the CD-ROM)							

Abuse

Firepower galore here, as you run around trying to save the world. Get to the water supply before the abuse gene seeps out, or the game's up. Being a hero is tiring stuff you know...

ON THE CD
Playable demo

Bored with 2D? If you've committed yourself to 3D you'll find the basic sprites and flat scrolling in *Abuse* outdated – but your short-sightedness may mean that you miss out on some fun. If, however, you're content with 2D, you'll find just enough testing and blasting gameplay, peppered with basic "puzzles" here to keep you amused.

So to the story. You play the central character, Nick Vrenna, in – you guessed it – a sinister future world adventure. With guns. Anyone familiar with Delphine's PC and PlayStation classic *Fade To Black* will afford a wry smile at Bungie's use here of the plot's "unfairly incarcerated in a futuristic underground prison" start point – and what sci-fi drama would be complete without a dose of alien genetic experiments?

There's an "abuse" gene floating around that you, conveniently, show immunity to. When a riot breaks out, you must seize your opportunity to blast abuse-mutated guards and inmates alike in a search for the Control Room, to stop the prison's infected water supply from contaminating the outside world. The Control Room is situated in the deepest bowels of the beastly subterranean complex, so a downward dash-and-blast lies ahead of you. (Well, actually, beneath.)

But don't fret – in this kind of game the storyline doesn't need to be too convincing. Your end objective is to reach the final scenario in one piece to save the world in heroic tap-turning-off style. Your individual goal is to cleanse each area of the hoards of mutants as they attack you in their various dog, ant and floaty forms. You must flick a few switches, bounce over your final monster-type enemies (bosses) who come in a frustratingly linear progression – frustrating at least if you're used to the freedom of exploration of, say, *Doom*, *Wolfenstein*, or Bungie's own *Marathon*.

There are four difficulty settings in *Abuse*, with the easiest, Wimp (those programmers, eh?), providing a test only for true novices. The first level is training, and the action only starts when you enter the second arena. There are on-screen save points that give access to five memory slots, which you can save over or add to with new positions of the game.

Along with your own choice of direction keys, your controls include using your mouse as a multi-directional weapon, left and right scrolls across an on-screen (but sub-*Doom*) weapon-inventory and a key to use special powers. Add to this a complement of speed power-ups (a chip with a flash on it); super-jumps; gravity-defying boots (a chip with, for some reason, a circle on it); various moving platforms; teleporters; destroyable walls and weapon, ammo and health power-ups – plus a bunch of baddies to use them on – and you have the elements of a great one-player shoot-'em-up. But, of course, you must combine them in the right way to make the shoot-'em-up challenging, exciting and, most importantly, the kind of game you'll want to come back to time and time again.

This is where *Abuse* falls a little flat – while the difficulty increases in the most obvious ways, the pace, mutants' sounds and the prison's graphics soon become monotonous. However, network play, involving up to eight players in combat mode, can spice things up a bit, and adds some new features too, including compasses and cloaking devices for a more devious approach to blasting your mates.

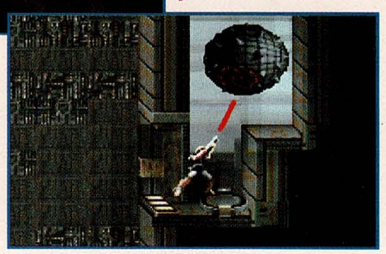
One of the most charming features is the inclusion of Level editors, which give away the game's PC shareware roots – they add an element of longevity, almost as much as your creative thoughts can muster. And you don't need to be a programmer to build new levels. On-screen help and scrutiny of the manual should get you through creating maps, placing objects from a library onto that map, and then linking objects so that they affect each other. While you're limited to rearranging existing elements, there's plenty of scope to build testing levels, and this can combine neatly with extending network play.

Even with these elements, though, *Abuse* can't quite make it to classic status. While all the essentials are there, there's simply not enough excitement, variety or surprise to keep you on the edge of your seat. You can find at least as much gameplay within titles that are far easier on the eye than *Abuse*, and this has to be a consideration.

JOSSE BILSON

Move your hero with keys, aim your gun with your mouse and blast these gun turrets before the mutants climb up from below to attack you.

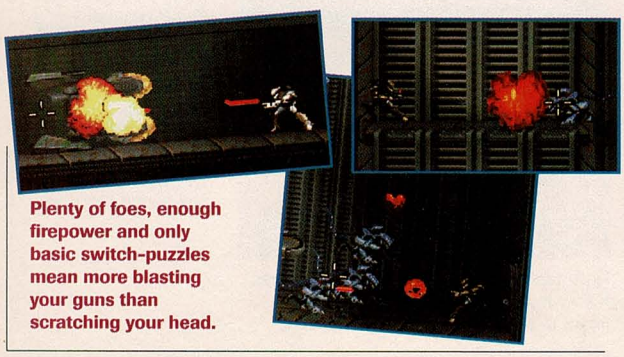
Blast this bomb to stop it blocking what looks like the exit... but then it explodes into smaller bombs to give you a real headache!



Hero Nick Vrenna: wrongly-incarcerated humanoid who does battle with mutants.

Borderline

It's also worth a note that Bungie Software's third-party developers Crack Dot Com have included a full-screen display option for monitors larger than 640 x 480, so you can get rid of the borders.



Plenty of foes, enough firepower and only basic switch-puzzles mean more blasting your guns than scratching your head.

Levels vary in size, but there are well-placed save points to back up your progress to your goal, the Control Room.

Abuse

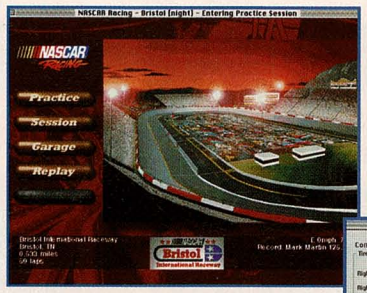
An ordinary looking game, with surprisingly good gameplay, plus plenty of levels and an editor for creating even more – but there's not that much new here.

Graphics	**55%**
Sound	**50%**
Gameplay	**80%**

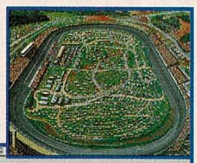
MF rating 72%

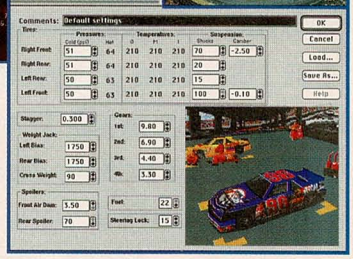
PRICE	£34.99	**ON SALE**	Now	**CONTACT**	Sierra on 0118 920 9100	**WEB SITE**	http://www.sierra.com/
MAC	PowerMac only	**POWERMAC**	**Processor:** any • **RAM:** 16Mb	**REQUIRES**	**System:** 7.5.3 • **HD space:** 15Mb • **Screen:** 640 x 480 • **Colours:** 256 •		
Extras: 2x speed CD-ROM drive							

Nascar Racing



The superbly detailed circuits may all look similar, but they're all surprisingly difficult to drive – and some, like the Bristol speedway (left), you can drive at night.





Back in the garage, you can put on your overalls and tweak the car to perfection, if you have sufficient quantities of time and patience.

With 16 circuits to choose from, this new racing sim offers both choice and power. It's time to go bumper to bumper and test your skill round those tricky bends...

They might look a bit like the family saloon you squeeze your kids and shopping into, but there's real power under the bonnets – or hoods, we should say – of the cars on offer in this new release. Catapulting you to a terminal velocity of over 200mph, the North American Stock Car is a beast that puts the mean back into machinery. If you go fast enough you can actually travel back in time, probably – which seems to have happened here. Take a quick look at the press accolades on the back of the box and you're suddenly back in 1995. What's going on?

The fact is, a version of *Nascar Racing* was developed for the PC many moons ago and it's taken the developer, Papyrus, over two years to deliver a Mac version. You'll now find the older PC version in the bargain basement bins at under a fiver – but rest assured, this PowerMac goodie is a genuine new release and the equivalent PC version is exactly the same price.

The in-game graphics are not quite as good as on this opening screen, but they're getting on that way.

Following swiftly on the heels of the excellent *IndyCar Racing 2* from the same software stable, this is an even more graphically impressive and slickly animated game. And it's a lot more fun too.

The bigger, heavier and altogether more macho Nascar racers pitch and roll maniacally around corners, constantly threatening to overcome the tenuous link of adhesion between rubber and tarmac. The cars almost live and breathe, and the realism comes home to your Mac courtesy of a superbly refined physics model that replicates its real-life counterparts with great accuracy.

While you struggle to control all the power and marvel at the true-to-life handling, the graphics engine makes you feel as if you really are putting your offside wing within a couple of inches of a concrete wall that flies by at up to 230 mph. Textured asphalt, grass and wall surfaces, highly detailed grandstands and pit lane entries and exits all flash past in an immaculately defined blur. There's a huge temptation to just sit and gawp at the scenery instead of getting on with the job in hand.

The circuits themselves are mostly ovals, but don't go thinking that racing round and round in distorted circles is a dull pursuit. All 16 tracks from the '96 season are faithfully reproduced, and, while most are more or less the same shape, they're very different to drive. And all that's before you proceed from the practice sessions and try competing against other drivers.

With all the death wishes of their human counterparts, the AI (Artificial Intelligence) controlled drivers mean to get past you any way they can. Bent fenders are the order of the day, and while you can set the skill level of your adversaries on a sliding scale, they're always a challenge. If, however, they drive you close to the edge of distraction, you can send them all back to the pit lane and race against a human opponent via a modem or AppleTalk connection.

Again, just as in the real thing, to be really good you have to put in the hours – setting up your car with the optimum tyre pressures, gear ratios and the right degree of front and rear spoiler attack. It's a business that demands great patience and lots of practice – and, to be blunt, life is too short.

What *Nascar Racing* boils down to is sheer nerve. To get past the car in front you'll have to shadow it within inches, sitting in its slipstream at insane speeds and risking everything as you dive for the slightest glimmer of opportunity. If you're into fast cars – and have a PowerMac with at least 16Mb of RAM, or are looking for a good reason to buy one – then this is it. **MATTHEW RICHARDS**

Nascar Racing

A speedy, fun-packed game that tests skill and patience to the full – great detail and scenery too, but demanding on hardware.

Graphics	**91%**
Sound	**88%**
Gameplay	**89%**
MF rating	**89%**

Nascar tracks

There are 16 tracks featured in *Nascar Racing* – ranging from Bristol International Speedway to the Atlanta Motor Speedway.

ON THE CD

Playable demo

Paint'n'go!

The game has a full paint shop for creating just the look you want. But since most of the paint will be scraped off before the first lap is out, it's a bit of a vain pursuit really.

Edited Race Highlights

Back marker John Smith edges up the outside of the number 78 car...

But he clips the fender and he's straight into a massive, smoking 360°.

Meanwhile, Bobby Labonte tries to squeeze between the Ford and the pit wall...

The front of the Ford is pushed in, but Labonte veers sideways in a four-wheel drift.

The 58 car can't avoid him and sends Labonte into the dirt, then the wall. Race over.

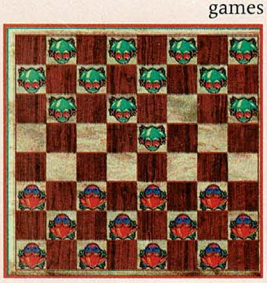
PRICE	£19.99	ON SALE	Now	CONTACT	Sierra on 01734 303171	WEB SITE	http://www.sierra.com
MAC	Processor: 68040 33MHz • RAM: 8Mb	POWERMAC	Processor: any • RAM: 16Mb	REQUIRES	System: 7.1 • Screen: 640 x 480 • Colours: 256 • 2x speed CD-ROM drive		

Hoyle Classic Games

Ten classic card and board games, and a load of silly animated characters. Why, it's just like the playing the real thing, only with less alcohol and not as many fights over who's cheated who at what.

Poker, eh? Great game. Only one way to play it though: off to the pub, down a few beers, back to yours, crowd round the kitchen table, eyes slitted against the wreaths of smoke, a few more beers on the go, gambling for real money... Oooooh. Totally addictive, and often totally bank-breaking.

But no longer. Sierra, creator of great games like *Phantasmagoria* and *IndyCar Racing II*, offers you this compilation of ten card and board games at the bargain price of £19.99. Compare that to the amount you lost at your last card game (that one at the end of your last holiday? The one where you swore you'd never play for money again?), and £19.99 is a bargain.

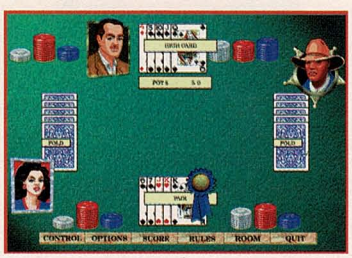


Checkers... or should that be "froggers"?

What do you get for your stake? Poker, Solitaire, Bridge, Cribbage, Checkers, Gin Rummy, Crazy Eights, Backgammon, Hearts and last and quite honestly least, Old Maid. Not only that, but you can choose from a selection of amusingly animated characters to play with or against, and endure their "helpful" comments throughout. And if you're not sure how to play your chosen game, just click on the "Rules" button, and the rules are explained briefly and clearly to you. Still not sure what to do? The other players in the game take pleasure in telling you when you're doing something wrong, and helping you correct your unfortunate mistake. The fact that the program does all the scoring for you is particularly handy in the case of games like Cribbage. On the other hand, though, you don't get to see the other players' cards and work out why they're doing what they're doing – a common way of learning card games when you're playing with friends.

But as well as offering the essentials, surely any game compendium also has to reproduce the atmosphere you get from playing games. That feeling you get when you gather around the caravan table, rain sheeting against the plastic windows, break open the grubby card pack, argue about the rules, spill tea everywhere, cheat, fight, make fun of the guy who doesn't know what he's doing... The makers of *Hoyle Classic Games* have recognised that this atmosphere is going to be a little difficult to create on a Mac, so they've included a few extras.

The animated characters verge on the bizarre at times, but you'll be chuckling with amusement at Dorothy's metamorphosis from normal to weeeeeiiiiirdo. Add in the ability to change the "room" in which you set your games (Wild West with sound effects?), plus some bizarre card patterns, and you can create the card game equivalent of LSD.



Winning at Poker... at last. Not saying this game's addictive or anything, but this picture was taken at 4am.

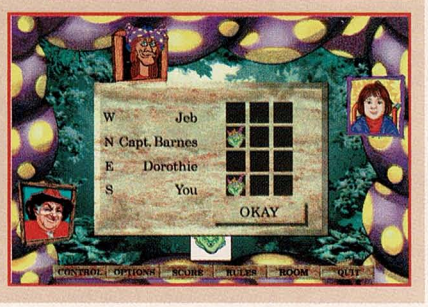
While these extras in no way make the game realistic, they do make the package even more entertaining. The graphics are clean and attractive, the sounds aren't too annoying, and the whole package works remarkably easily and intuitively. If you love card games, it's a dream come true. With virtually no niggles to speak of within the limitations of the genre, this is an almost flawless package. **JILLIAN WERB**

Easy if you know how...

Choose the game you'd like to try and play...

... Select your weird animated opponent...

... Choose an attractive background to set the game against...



... And lose at *Old Maid*, the easiest game of the lot. Hmmph.

Don't try this at home, kids

You really shouldn't play this game on drugs...

Dorothy's a pretty but formidable gaming opponent.

Uh oh, things are happening. Take it easy, Dot.

Blimey. Less of that, my girl. You're distracting your opponents.

A placid looking alien – just slightly disconcerting.

Hoyle Classic Games

Exactly what it says: ten classic games, slickly and entertainingly recreated. What it lacks in atmosphere, it makes up for with an awful lot of giggles.

Graphics	82%
Sound	73%
Gameplay	89%

MF rating 85%

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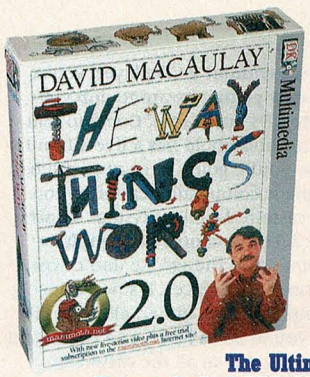

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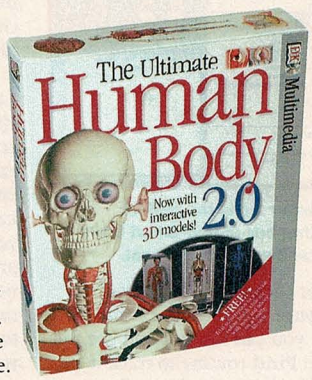
This CD-ROM uses animated diagrams to explain how machines work, and comes with access to an exclusive Web site and a 160-page *Inventions* book.



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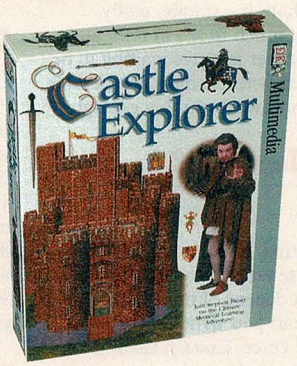

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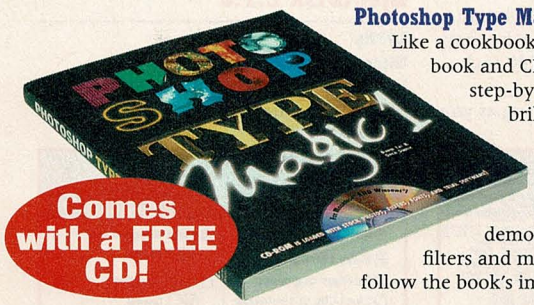

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SHAREWARE CENTRAL

Pay up

Just in case you're thinking of keeping any of these shareware programs without paying the fees, this issue's margin notes list all the horrible things that might happen...

ON THE CD

Try out all of these programs on our Cover CD.

No more data

Some programs (like *Organizer*, reviewed this issue) will confiscate your data until you pay up.

Contrary to popular belief, the best things in life are not free. Rod Lawton shakes the moths out of his wallet...

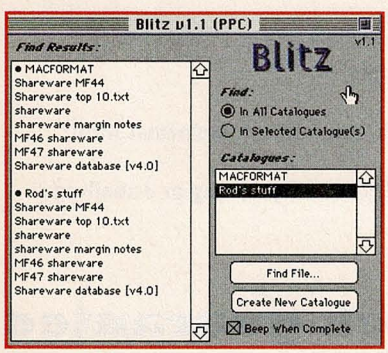
Some things never change in the shareware world. If you want low-cost or no-cost software, you'll still find gigabytes of it on the Internet. And if *HyperCard* programmers expended as much effort on their shareware stacks as other shareware programmers do on their applications, there would be some deeply impressive *HyperCard* stacks knocking around. But they don't, and there aren't.

Apart from that, most programmers are pretty good judges of what their software is worth. And our favourites this month are commercial-quality products at – regrettably – near-commercial prices. But at least you get to try before you buy.

Blitz 1.1

Cataloguing
Shareware, registration fee $15

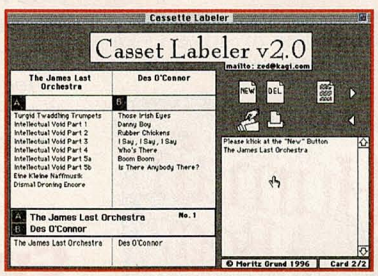
You've got a problem. You know that the latest *StuffIt Expander* update was on one of your MACFORMAT Cover CDs – but which one? Do you really want to trawl through the tens of megabytes of shareware on each one? Probably not. And especially not when you can use a handy bit of shareware that can cut down your trawling times to mere seconds.



Aha, so that's where I've stored all my shareware files. Thanks to *Blitz*, I guess there's no excuse for handing copy in late now.

You can – allegedly – drop the icon of any folder or volume onto *Blitz's* application icon for it to create a catalogue of the entire contents. In practice, you might have to launch *Blitz* and create a new catalogue yourself. Either way, the result is the same. You get a quickly searchable catalogue of the entire volume or folder. These catalogues are listed in one *Blitz* window and the results of searches are displayed in another. You don't get a directory listing showing you exactly where the found files are on each volume – but then you don't with similar cataloguers like *Disk Wizard* (also on the Cover CD) or *Catalogue* (MACFORMAT 41) either, and once you have the name of the volume, you can insert it and use the Finder's own **Find** routine to track it down. And that's it – simple, really.

There's not much to see in *Blitz*, and there are no other features waiting to be discovered below the surface. But it does what it says and works simply enough.



***Cassette Labeller 2.0* is the perfect solution for that box of dog-eared C90s jammed under the passenger seat.**

Cassette Labeller 2.0

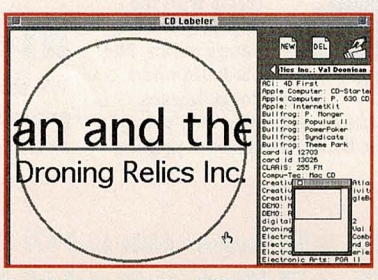
Labeller
Freeware

It's so frustrating, it really is. Buy a decent cassette tape and you can re-record over it dozens of times. But how many times can you write on the cardboard insert? Once. Exactly. Gaahhhh!

That's why people produce cassette labelling software – the perfect solution for those people who don't see why they should have to pay for a new C90 each time they bootleg an album.

No, that's not quite fair. As long as you have a car without a CD player, you're legitimately going to want to dub your favourite CDs onto tapes. Come to that, until your household has a five-CD autochanger, you're going to want to produce home-made compilation cassettes, too.

As a cassette-labelling system, *Cassette Labeller 2.0* is functional enough. It's a *HyperCard* stack, though, so don't expect any dramatic interfaces. It's not a hugely ambitious program, either: all it does is enable you to fill in labels and tracks and keep a catalogue of all the cassettes you've thus labelled. It does manage to print out the label in the correct orientation for cutting out and inserting in your cassette cases, though. Oh, it does need the *HyperCard 2.2* player (now bundled with most Macs as an Apple Extra).



So this is version 2.0 of *CD Labeller?* Good grief, what was version 1 like then?

CD Labeller 2.0

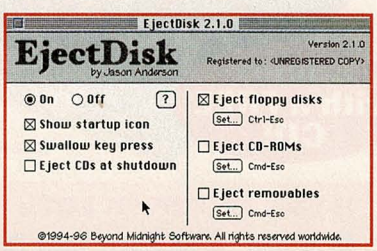
Labeller
Freeware

It comes from the same author, so can we assume that *CD Labeller* does for CD labelling what *Cassette Labeller* does for audio tapes? Not quite. Should titles more than a few characters long really disappear off the sides of the label? And where do you type in the track details? Wait a minute. Why should you want to create a CD label in the first place?

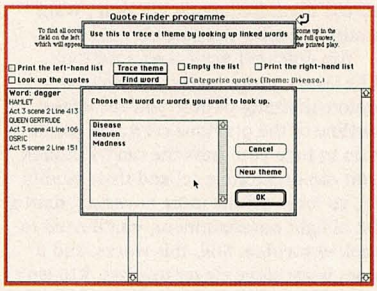
EjectDisk 2.1.0

Utility
Shareware, registration fee $10

When you want to unmount and eject a disk, CD, SyQuest cartridge or other re-



Now you too can eject any kind of removable media with a single key combination, while working in any application.



***Hamlet Quote Finder:* is this a *HyperCard* stack I see before me? (Actually, no, that's the wrong play, isn't it?)**

movable media, it's a pain in the neck having to switch to the Finder, heave windows out of the way so that you can see what you're doing and then haul the offending volume to the Wastebasket. Which is why *EjectDisk* was written. It enables you choose a key combination to eject floppies, CDs, Jaz drives and the like. Simple as that. You don't have to switch out of the current application and you don't have to select and drag the offending volume. Not bad at all. $10 seems a bit steep, though, for something that will only save you a handful of seconds per day.

Hamlet Quote Finder

Education
Shareware, registration fee £5

Apple should really have shipped a manual on interface design and guidelines with *HyperCard*. That would have prevented thousands of perfectly reasonable *HyperCard* stacks from looking and behaving like they do.

Hamlet Quote Finder is a prime example. It's actually quite a good search engine which will find instances of particular words in Shakespeare's *Hamlet* and display the lines they come from. It will also help you explore themes and ideas developed in the play, and would be quite a good study aid if you were tackling *Hamlet* in your schoolwork.

However, it looks like all amateur *HyperCard* stacks look, only worse. The wrong sorts of buttons are used for the wrong sorts of actions (you don't normally use checkboxes to move from one window to another) and to add insult to injury, it even disables the menu bar so you can't switch applications.

Menu Shade 1.0

Utility
Shareware, registration fee $5

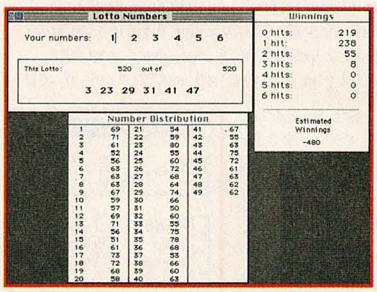
Is your screen so tiny that you're glad of every extra square millimetre you can squeeze out of it? Well then, *Menu Shade* could be your answer. As any sad, smug Wintel nerd will tell you, *Windows 95* can hide its Taskbar when you don't need it and yet the Mac's menu bar is permanently visible.

Ah, but by installing a simple System Extension, then hitting the magic key sequence, you too can make your Mac's menu bar disappear, only to reappear when the mouse pointer is at the top of the screen. Some of the time, anyway. This trick only seems to work as long as you don't actually use any of the menus (on my 6200, anyway). Oh... hang on a minute... my menu bar disappeared just as I typed that last full stop. It works more of the time than we originally thought, then.

(Un)Lucky Lotto

Gambling
Freeware

I've just worked out how I can make around £500 over the next ten years – stop buying a flipping Lottery ticket at Tesco's when I do the weekly shop, that's how. Although *(Un)Lucky Lotto* is designed to calculate winnings from the Californian lottery, the system is much the same as ours and you can customise it to mirror the Camelot system reasonably accurately. Accurately enough, at any rate, to work out that your chances of winning a sizeable pile of cash are minuscule. The author doesn't want any money – unless you choose to send him some out of the mountains of cash you'll automatically save by not entering the thing any more, obviously.



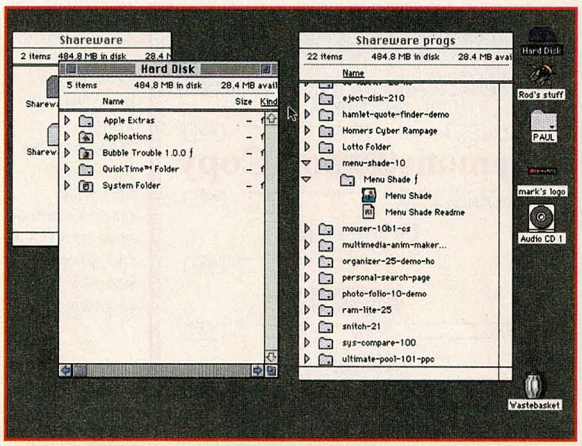
This is your balance sheet after *(Un)Lucky Lotto* simulates your cumulative winnings following ten years of the lottery. Mug.

Personal Search Page 1.3

Utility
Freeware

If you regularly go searching for information on the Internet, you've probably got your own favourite search engine. *Personal Search Page 1.3* connects to all of the popular search sites, displaying fields for you to type in your search criteria for each one. Unusually, though, it's designed to reside on your hard disk so that you can compose your searches without first having to connect to the Net and download a search page.

A great idea? Possibly. The author thinks it's a great time-saver, but I can't honestly recall being terribly dismayed at having to download search pages... But there you go. Oh, and it does work, by the way.



You can increase the usable size of your display by using *Menu Shade* to hide the menu bar until you need it. It works quite a lot of the time, too.

PhotoFolio 1.0

Application
Shareware, registration fee $49.95

Photographers, illustrators and maybe even photo libraries will frequently want to distribute samples of their work, preferably in an easy-to-use slideshow format. On the other hand, they want to distribute images in an encrypted form so that unscrupulous publishers can't copy and use them without permission.

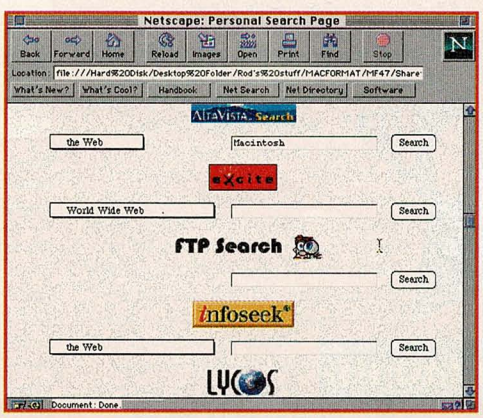
PhotoFolio addresses all these needs perfectly. It comes in two parts: the *PhotoFolio Converter*, which both encrypts and compresses images, and the *PhotoFolio Browser*, which is a customisable slideshow application you send to your potential viewer. Using the *Browser* you can view the pictures as thumbnails and simply drag-and-drop to change their order. You can also choose the delay between slides and the type of transition you require. The viewer can either drag

No more shareware

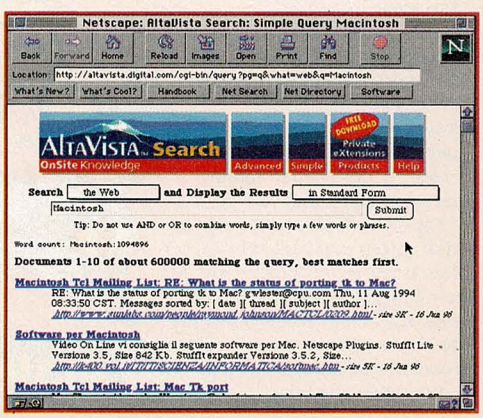
If you don't pay your shareware fees, shareware authors may give up writing software and go into merchant banking, supermarket administration or rocket science, leaving Mac owners at the mercy of big software corporations.

No more innovations

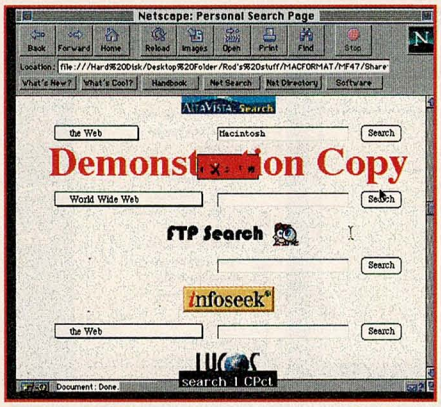
Seriously. Half of System 7.5's improvements over 7.1 were "inspired" by shareware. That's a kind way of putting it... And with Mac OS 8 so far over the horizon, maybe Apple should be checking out the MACFORMAT Cover CD for ideas...



It's quite neat being able to choose an Internet search engine and enter all your search criteria off-line...


Netscape: AltaVista Search: Simple Query Macintosh
AltaVista Search
OnSite Knowledge
Advanced
Simple
Products
Search the Web and Display the Results in Standard Form
Macintosh
Submit
Documents 1-10 of about 600000 matching the query, best matches first.
Macintosh Tcl Mailing List: RE: What is the status of porting tk to Mac?
Software per Macintosh
Macintosh Tcl Mailing List: Mac Tk port

***Personal Search Page* fires up your Net connection, retrieves required data and then pops up the results.**



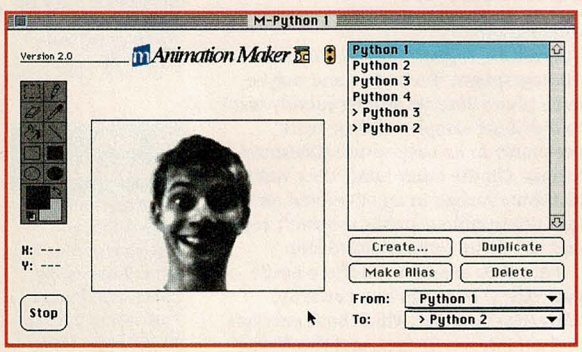
PhotoFolio **is distributed as a demo only. Unless you want the words "Demonstration Copy" splashed across each of your images in red, you'll have to register it.**

any of the images in the folder onto the application to view that image on its own, or double-click the *Browser* to have it run through all the pictures in the folder. The pictures are displayed against a black background, for added polish.

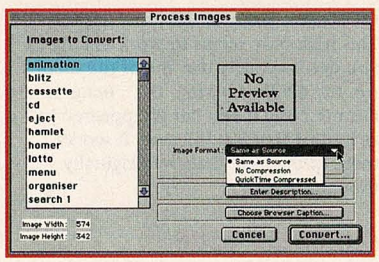
The interface is very neatly designed and well thought-out. Indeed, *PhotoFolio* looks and feels like a commercial application. But then at a whisker under $50, so it should. The price is the only serious criticism you could level at what is a very a accomplished piece of software. If you're a designer or artist looking for a way to produce interactive portfolios quickly and simply, this is it.

No more updates

If you don't register your shareware, how are you going to know when a new, improved version becomes available? Face it, if you like it enough to use it, you're going to want to know about enhancements.



Good for a laugh or for simple quick animations, but ***Multimedia Animation Maker*** **lacks the more advanced tools for real creativity.**



Use ***PhotoFolio*** **and you can encrypt your images to prevent unauthorised use.**

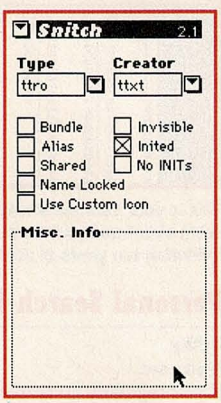
Animation Maker

Application
Shareware, registration fee $20

Multimedia Animation Maker, to give it its full title, is a neat little animation creator that can save its animations either in its own proprietary format or in PICS format (as used by most Mac multimedia authoring applications). You create each cel of the animation in a window up to 256 x 256 pixels in size (this limit may be raised in future versions), and they appear as a list in a window to the right.

The painting tools are very basic, but you can import PICTs from other drawing applications, so that's no problem. You can also replay the finished animation at pretty well any speed you like. And you can use "aliases" for cels if you re-use them frequently but don't want multiple copies clogging up your disk.

You don't get more advanced tools, like actors, props, paths, timelines or onion-skinning (where you see a faint outline of the previous cel in the animation to help you draw the next – though you can duplicate a cel and then modify it), so for anything more advanced than a bit of light entertainment, you'll need to look elsewhere. Still, this works, and it does boast some clever touches. $20 isn't much, but you must pay it if you want to save your creations.



With ***Snitch*** **you can find out a whole lot more about your files. And you can change those creator and file types, too, but only if you're sure you know what you're doing.**

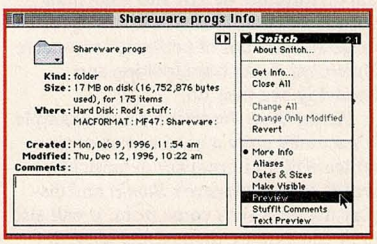
Snitch 2.1

Utility
Shareware, registration fee $20

Snitch is a System Extension that combines the file creator and type information provided by programs like *File Buddy* with the System's own **Get Info** dialogue. It adds a panel to the side of the dialogue with the additional information, plus a menu of other options including "plug-in" modules to further extend *Snitch's* capabilities.

Using these modules you can get information on aliases, reuniting them with the original file if necessary. You can also modify resources, modification and creation dates, preview QuickTime movies and JPEGs with preview data – and view invisible and preview text files.

This all adds up to a very clever system for tech-heads, enabling some in-depth



Get Info dialogue boxes become a lot more useful in ***Snitch,*** **with its drop-down menu full of handy plug-ins.**

Snapz Pro 1.0

Utility
Shareware, registration fee $20 ($10 when upgrading)

Screen-grabbing programs are perfect for people creating on-line tutorials for software, because they save whatever's on the screen as an editable bitmap image. They're also great for magazines like MACFORMAT, which need to capture and print application screens.

Pop-up menus, animations and other screen activities, though, can often trip screen capture programs up – either the capture doesn't work at all, or it only works once the action you wanted to record has finished.

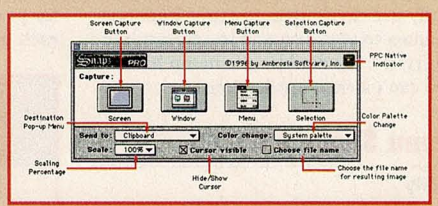
Snapz has long been one of the better screen capture utilities around, often managing to grab screens that other programs can't. Now there's *Snapz Pro,* and it comes with a new bunch of features, including the ability to grab a selection, trim a selection and even dither images to fit a smaller colour palette.

Star of the month

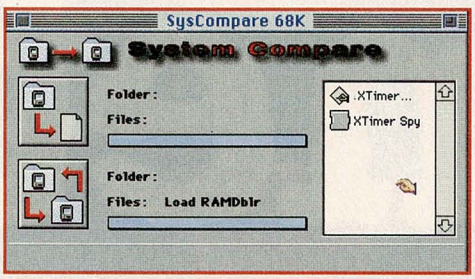
For each grab, you can choose to capture the entire screen, a specific window, a specific menu or a selection. The window and menu options are particularly smart – they capture just that object, or even a whole hierarchy of menus, ignoring any background. You can also select non-active and partially hidden windows, although any overlapping window will appear on the grab.

Once you've captured an image you can choose where it's saved, what it's named, and even what application's format it is saved in, so you can later open it with your favourite PICT editing application just by double-clicking.

Snapz was already a leading utility. Now in *Snapz Pro* you get some superbly planned and executed tools for capturing just about anything your Mac is capable of displaying.



Here's the formidable ***Snapz Pro*** **grabbing window, where you can choose what to grab, what to call it, where to save it and much, much more.**



Gotcha! You know that those installation routines deposit files in your System folder and, thanks to *System Compare*, you now know which files they are.

modification and analysis of files. It's not for beginners, though – partly because it does few things that you'll want to do if you're a beginner, and partly because messing around with creator/file types and resources can quickly get you into trouble if you're not careful.

Other tricks include the way the application enables you to get info on any other file while you have an info window open, and being able to instantly configure the information shown in all open info windows according to the currently active one. The shareware fee is fairly stiff, but if you need this kind of information and control on a daily basis, you're not going to find it more neatly integrated into the System than this.

System Compare 1.0

Utility
Shareware, registration fee $5

How often do you have a good root through your System Folder, chucking out all the old Prefs files, fonts, Extensions and other garbage that's accumulated there over the years? If you use lots of different software and – especially – if you regularly try out shareware, there's probably tons of the stuff clogging up your Mac's innards.

But how do you know what's rubbish and what isn't? Programmers are not always terribly helpful about how they name these files, and you really don't want to chuck out anything vital by accident.

That's where *System Compare* can help. You run it once before you carry out any installations, then you run it again once installation has finished, and it compares the contents of the System Folder both before and after, listing the individual files that were added during the installation.

This does take a few minutes – especially the second scan. If you plan carefully, however, this isn't too much of a pain. For example, you could clean out your System Folder completely, scan the contents (they're saved as a document that *System Compare* can check against any time in the future) and then re-scan the folder again periodically in the future to weed out unwanted new files, or just check what has been added by new programs.

It's a smart idea, and the program itself looks very neat and tidy. It's definitely one we're keeping in MACFORMAT, not least because of the hundreds of shareware programs we have to take a look at each month...

Ultimate Pool 1.0.1

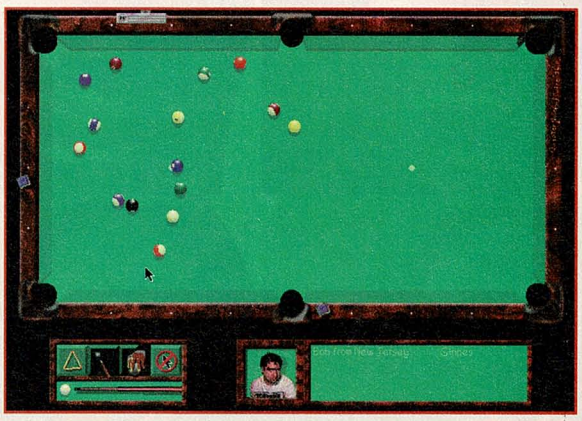
Game
Shareware, registration fee $20

As pool games go, this one's pretty good. It's colourful, good-looking and has several different basic pool variants – as well as a wide range of computer opponents who can challenge you at differing skill levels.

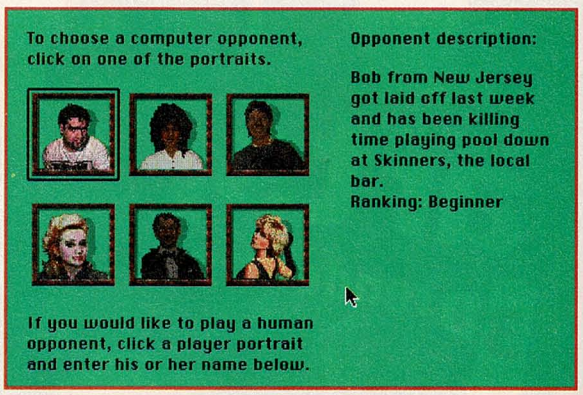
Not that skill always plays the part it should. For instance, there's no opportunity to apply spin, and the precision with which you can line up your shots isn't always what it might be. You can control the power of your shot, though, by the length of time you hold the mouse button down.

If the computer opponents are too tough for you (ha!), or you find you can wipe them all out with ease, you can play another human. For this option, though, you will have to send off your registration fee.

Ultimate Pool is okay. It looks good, but it plays slightly less well. If you want a laugh, it does the job. For serious students of pool table dynamics, though, it's going to prove a bit of a let-down – and you won't get to show off that twirling-the-cue trick you've mastered. **MF**



It's game-on and you're playing *Ultimate Pool*. Your opponent is seedy Bob from New Jersey. And you really want to beat him.


To choose a computer opponent, click on one of the portraits.
Opponent description:
Bob from New Jersey got laid off last week and has been killing time playing pool down at Skinners, the local bar.
Ranking: Beginner
If you would like to play a human opponent, click a player portrait and enter his or her name below.

Let's choose someone else to play. There's no sexism here, but there is an anti-human bias – you can't play another human without first coughing up the registration fee.

No more features

Many shareware applications are demos of fully-featured applications. If you want all the features, you're going to have to pay.

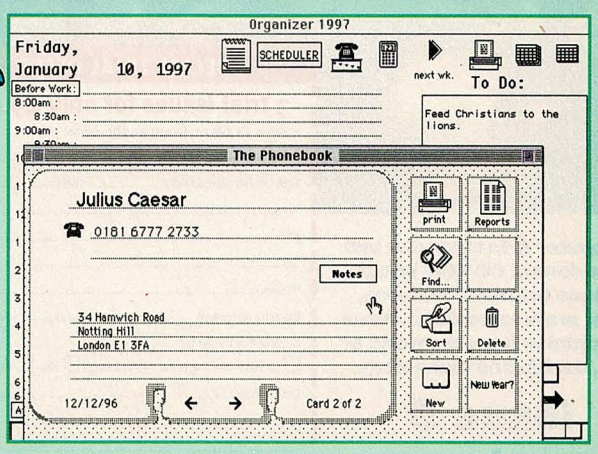
Organizer 1997

Application
Shareware, registration fee $12

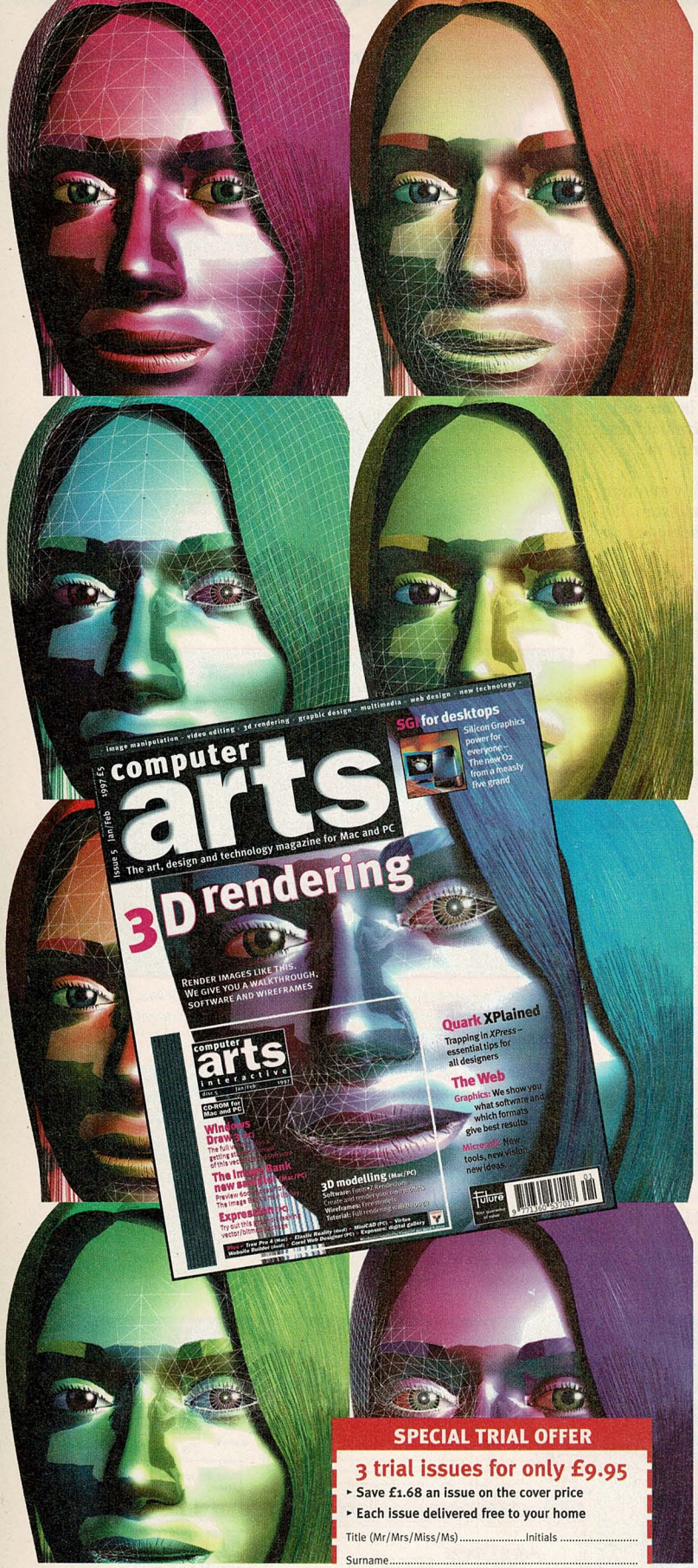
Hmm... another *HyperCard* organiser. It's not vastly different from the sample stack bundled with the *HyperCard* player that comes with most Macs, and certainly not different enough to justify a $12 registration fee. If you do use it and don't pay the fee, you lose your data after a month, only getting it back when you cough up. It wouldn't be so bad if this were an accomplished bit of *HyperCard* programming, but it's not. For some reason you need to enter schedule data on the first day of the month, and dates and times have to be entered with the correct format and syntax.

Given that *HyperCard* is about ten thousand times easier to program than any other language, there's no excuse for lame stacks like this one. As freeware, it might be worth a glance, but as software you're supposed to pay for... Thanks, but no thanks.

In the bin



It would be a tragedy if you were to look at *Organizer 97* and imagine that this is all that *HyperCard* is capable of. Pleeease.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Safe as houses?

Do you use your Mac at home? Are you assuming it's covered against theft and damage under your household contents insurance? Shane Roe finds out if you'll have to buy a new Mac out of your own pocket if disaster strikes.

Macs in general and RAM in particular have become prime targets for thieves. But that's not the only hazard facing you if you use a Mac at home. What if you drop your computer? What if your house gets flooded or your kit is fried by an electrical storm? Are you properly insured? Insurance companies regard computers that are used for work as being a very distinct and separate "risk" from those used for ordinary home computing.

If your Mac at home is for purely personal use, a home insurance policy will cover all eventualities: theft, fire, flood, storm damage, accidental damage – known to insurers as "standard perils". (However, you should check that you are covered for replacement of expensive single items like a Mac. You normally have to specify or "disclose" such items.) But if you do any paid work on your kit, then you might not be covered.

So should you just keep quiet about your paid work? Not recommended. If your insurance company finds out, it is likely to refuse to pay out at all. How would it find out? Well, either you tell it ("please pay out quickly – I need a Mac for my work"), or it feels your claim is suspicious. The reality is that if your total kit is worth under £1,000, you might get away with ordinary home contents insurance only. But if you have a set-up that cost more than, say, £2,000, you risk your claim being investigated. The insurance company will know the full extent of your kit (if you *haven't* "disclosed" it all in advance, you'll certainly not get back its full value, if you get anything), and it may start to wonder whether your 600dpi LaserWriter, colour scanner and SyQuest drive are really purely for personal use.

If a burglar takes your brand new 9500, you can claim a new one on the household contents insurance... can't you? Maybe not.

If the insurance company's investigation reveals fraudulent non-disclosure, it might do more than just refuse to pay out, and you may have more to worry about than simply paying for a new Macintosh.

More positively, if you do use your Mac for work, there are extra perils you can insure against at minimal cost. Let's look at a true story that illustrates the factors you should be considering.

True story

In 1995 Simon Green moved his family and DTP business from Islington in London to the heart of Somerset. He had separate policies for home contents and for his business, which he ran from home, although work was often at his clients' offices. Moving from the inner city to the country reduced the premiums from around £300 (home) with Norwich Union and £900 (business) with Legal & General, to £120 and £700 respectively.

In May 1996 the policies came up for renewal. Various TV campaigns had alerted Simon to the possibility of cheaper insurance. He called his insurance broker to see what could be done. The broker was able to offer an additional option to the Norwich Union home policy – the Homeworkers add-on. It offered full cover, including employer's liability. And the total cost of this policy was £245.

In September an electrical storm in Somerset cut the electricity supply and the telephone to Simon's home. A power spike that occurred during the storm damaged Simon's 16.6kbps modem (£225) and his Quadra 660AV (which, with 24Mb of RAM, cost £2,150 in 1993).

It took a week for both the electricity and telephone lines to be reconnected. The Quadra still worked well enough to enable files to be backed up, but communications via fax and the Internet proved completely impossible.

Simon called the Norwich Union 24-hour Club Line. A courier came the next day take away the modem and Mac. The men in white coats decided that the modem could be fixed but at an uneconomic cost, so Norwich Union offered an upgrade to a 28.8kbps model for a small fee. It turned out that replacement parts for the Quadra were unobtainable, so it too was deemed unrepairable. Since it was valued at around £2,000, Norwich Union replaced it with a Power Macintosh 7500/100, a machine of then equivalent value, which arrived by courier shortly afterwards. All Simon had to pay was his policy's £50 excess, plus £10 for the better modem.

Did you know your modem could be destroyed by a power spike? Will your household insurance pay for a replacement?

This happy result for Simon was achieved with a Norwich Union Home Plus policy. This policy insured Simon's home contents to the value of £15,000 and his office contents to the value of £15,000, including full employer's and public liability. There was one aspect of cover that many businesses insure for, though, which Simon's policy didn't cover: it's known generically as "business interruption" (BI).

No interruptions please

Having his workstation and modem upgraded thanks to an Act of God made Simon happy... at first. "However," he explains, "it took me five working days to install all my applications and back-up files. The PowerMac didn't seem to like my version of *Norton Utilities*, and I had so many problems setting up the System that I had to re-install a completely clean System Folder. There were no short-cuts. And my insurance didn't cover me for this."

Simon didn't lose any files, because he'd backed everything up. But... "I use CompuServe, as do many of my clients. I could simply re-install the software and set it up for the new modem. But all my e-mail addresses were in my archive on a SyQuest cartridge. The only way I could get them was to copy the archive onto the hard drive, expand the archive and transfer the information into the necessary folders. It all took hours."

All told, it eventually took Simon four weeks to bring his Mac into full operation. Fortunately, this coincided with a holiday and plans to re-organise his office. "If I'd been on a deadline, it would have been an expensive disaster."

Counting the cost

If Simon had been working under contract at the time, he would have required more than simple replacement of hardware. He would have needed to hire replacement kit, or contact a service bureau with desk space for hire. (The first option is very expensive, but perhaps easier than finding a convenient office full of the required kit.) These expenses would only be covered with business interruption cover.

If you can't find kit to hire or use and the contract really can't wait, you might need to sub-contract your job – pay others to complete work you can't finish in time because of the damage. Or possibly your actual working space is unusable – your entire house may be flooded, for example – and to complete a contract (and find somewhere to sleep!) you may need to relocate to a hotel. These expenses can often be met with a BI policy.

Even if it's not quite this bad, you may still have to reinstall software and reinstate data. As you might know if you've ever suffered a hard disk crash, this sometimes takes more than *Norton Utilities*. You may need the help of a specialist data recovery service. Such costs would be covered by most standard BI policies.

On top of all this, some clients

may not tolerate any delay in the fulfilment of their contract. They might take their jobs elsewhere, so you lose income and profit. A BI extension may cover these losses. The client may even turn nasty and refuse to pay for what you have done so far. A further BI extension for debt recovery, which provides for legal expenses, is also available.

Help is at hand

Insurance for people who work at home on a Mac is now cheaper and more wide-ranging. If you're an occasional freelancer, like Simon, the Norwich Home Plus policy should suffice. But if you work full-time from home, then you'd be well advised to take out a homeworker insurance policy with a comprehensive BI option.

The only other aspect of insurance you may possibly require is Professional Indemnity. This provides protection for journalists and copywriters against libel and for designers against copyright theft. It's expensive, but could just possibly save your business.

Working from home is a solitary existence, but the Telecottage Association (TCA) can help. "We cover the problem of insurance on regular basis," says TCA President Alan Denbigh. The March 1996 issue of the TCA's quarterly magazine *Teleworker* surveyed the insurance industry to see what it could offer homeworkers. "When you bring work into a home environment you are, in insurance terms, mixing two distinct areas of business," it reported. "Broadly speaking, insuring homeworkers should be cheaper, because it's less risky. For a start, unlike the usual commercial premises, the home is occupied most of the time. Empty offices are easier to rob. And accidental damage is less likely to occur. For example, a tap is less likely to be left running in a house than in the Gents on the third floor of an empty office building. The insurance industry is at last coming to terms with this."

Another factor bringing down the price is that homeworking is a growth area for the insurance industry, which sees the market expanding by as much as 30% in the next three years.

Unfortunately, commercial insurance is a more murky world than home insurance. In general, a home policy is based on the value of cover. All risks are insured. (There are exceptions, but you will find that if one company won't insure or pay out in a particular circumstance, then none will.) Business insurance is much more specific. There are minimum legal requirements – employer's liability, for instance – and most policies of course opt for the standard perils, but you have to insure for a circumstance specifically. A specialist broker can help.

The TCA recommends Tolson Messenger, an insurance broker which formulated its specialised homeworker's policy in 1993.

"Most small computer-based businesses don't carry stock," says Tolson Messenger's Ian Jones. "Another vital area of cover to the homeworker is public liability. It's a hang-up from the premises-based past. If a client falls down your stairs, you're covered, but how often do homeworkers entertain a client? Not very often. In our experience, our policy holders usually visit their client's office. What happens if you knock over the designer's monitor? Clients aren't always huge corporations and may look to recover their losses and business interruption. Our public liability covers this."

If you knock one of your clients' expensive calibrated monitors on the floor, they might sue you for the cost of a replacement. Are you insured?

Tolson Messenger has evolved a basic homeworker's policy that covers all risks, business interruption and public liability for those tricky visits to the client. For a premium of £120 you get £7,500 all-risks cover for equipment, £10,000 business interruption cover and £1,500 to cover a PowerBook. And unlike home policy premiums, which vary according to your postcode, the £120 is the same wherever you live.

This basic policy can be expanded as necessary. An additional premium of £45 covers £45,000 loss of income and profit, while another £45 adds debt recovery and legal expenses. For the record, Professional Indemnity is a wacking £350.

The success of Tolson Messenger's Home Business policy is borne out by the fact that Commercial Union, the company that underwrites it, has now introduced its own homeworker's policy. While recognising Tolson Messenger's trail-blazing efforts, however, the Commercial Union policy is more expensive – for now.

Perhaps the cheapest option available to Mac owners is the Direct Line Insurance company. It will insure your contents and, providing it's not for full time work, will include kit to the value of £5,000. Had Simon Green's kit not been worth a total of about £7,500, he would have seen his premium fall from £243 to around £105. This is rock-bottom insurance cover, which excludes public and employer's liability, and of course any business interruption option.

Be honest!

It might seem tempting to understate the value of your equipment, or play down your professional activities, in order to reduce your premiums. After all, in Simon Green's case only £2,500 worth of kit was actually damaged, so the Direct Line Insurance policy would have covered his claim. Surely no-one would have lost out? Even if he had had all of his kit stolen, at today's prices £5,000 would have replaced it more than satisfactorily.

Of course it doesn't work that way. At best, Simon might have got a reduced payout. At worst, "non-disclosure" may void your policy, leaving you with no cover at all. The reason is that one purpose of disclosure is to enable the insurance company to assess the risk. £7,500-worth of kit is more inviting to thieves than £2,000-worth, so your false valuation can amount to misleading the company as to the risk.

The moral is this: cheat on your insurance and you'll end up with no insurance at all. And before you use your Mac when taking work home with you, make sure that the policy you already have gives you the cover you want. **MF**

■ **The information here is for general guidance only. It is not expert advice. Always consult your own IIB registered insurance broker.**

Insurance advice

Personal use

- **If you use your Mac for leisure purposes only, a simple contents policy will suffice.**
- **If your equipment has a total value in excess of £2,000, inform your broker that it is specifically for personal use.**
- **If you have a PowerBook you will need to specify its value in order to be adequately covered under the all-risks section outside the home.**

It's important not to confuse this figure with the maximum value of any one item (usually about £1,500), because you only get a small percentage of this figure for goods in transit.

- **Insurance premiums can sometimes be reduced if you exclude cover for accidents.**

Working from home

- **If you only do occasional work at home and you have kit valued under a certain figure – say £5,000 – then your home insurance may cover it. But make sure before you start work.**
- **If your kit is worth over £5,000 then you need a homeworkers add-on to your contents insurance policy or a specialised homeworkers insurance policy.**
- **If you work full time from home you need a special homeworkers policy or add-on to your contents insurance that includes public and employer's liability.**
- **If your workload is heavy and deadline-based then you ought to go for the safety of a homeworkers policy with a "business interruption" option.**

Important numbers

You can buy insurance only from an insurance broker. Check your local Yellow Pages for brokers near you, and make sure that they are registered with the IIB. The contacts here are for information only; MACFORMAT does not endorse or recommend any particular company.

The Telecottage Association
Advice for people who work at home on computers.
Address: The Other Cottage, Shortwood, Nailsworth, Gloucestershire GL6 OSH.
Tel: 01453 834874
Fax: 01453 836174
E-mail: 100272.3137@compuserve.com

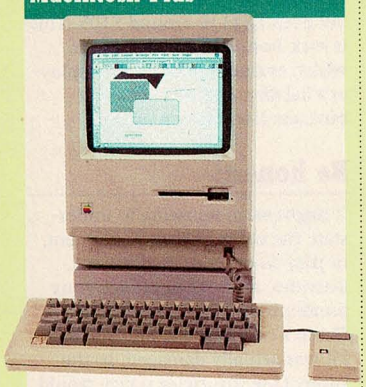
Tolson Messenger
Dedicated homeworkers insurance broker.
Address: 148 King Street, London W6 OQU.
Tel: 0800 374246
Fax: 0181 741 9395

Direct Line Insurance
Cheap home contents insurance, with a small allowance for some homeworking (not full-time).
Tel: 0181 686 8877

Mac Facts explained

68LC040: a variation of the 68040 processor, which lacks the FPU component its relative enjoys.
FPU: the Floating Point Unit speeds up complex maths calculations – useful for 3D for example.
MHz: a processor's megahertz rating gives an indication of its speed, but the type of processor is equally important when you're comparing models.
NuBus: the Mac's traditional expansion slot. Outdated now, but there are still plenty of cards available.
PCI: Peripheral Component Interconnect is the expansion standard that's replaced NuBus – faster, cheaper (on the whole) and not likely to become redundant in the near future.
PC Card: formerly known as PCMCIA, it's the industry-standard expansion slot for portables. Lots of options.
PDS: the Processor Direct Slot is often used to upgrade your Mac's processor, but you can get other types of card too.
PPC: PowerPC is the standard processor for all Macs nowadays. Broadly speaking, the 604e is the fastest, with the 604, 601, 603e and 603 trailing it – but compare those MHz ratings too.

Macintosh Plus



The Plus wasn't the first Mac, but in a way it is the benchmark compact Mac. It was relatively affordable (though still a hefty £2,599 when released in 1986), and came with a generous megabyte of RAM, expandable to a huge 4Mb – still enough today to run a reasonably up-to-date System (say 7.1) and a respectable word processor (or System 6 and Multifinder, so you can even load two applications and switch between 'em!).

The Plus had no expansion slots, but its 8MHz 68000 processor was fast and powerful for its time. Its 9-inch mono screen was a marvel too: it's crisp and steady, and displays even text graphically – that is, as black characters on a white background, in variable fonts and sizes. A huge advance when contemporary "micro-computers" offered only flickering green type on a black screen.

The Plus had a serial keyboard and parallel port mouse, not the current ADB (Apple Desktop Bus) system, and internal hard disks came only late in its life, but you might now find a working Plus with 20Mb external hard drive for £200 or less – a bargain for what is still an eminently usable, portable Mac.

Mac Facts

What processor is in your Mac? How much RAM can you add? With so many models over the years, it can be hard to keep track. Whether you want to know if you can use a program we've reviewed this issue or need to know what upgrades you can fit, our complete table of every Mac model ever should help. Current models are coloured blue-green. See page 78 for tests of the Family Mac 5400/180 and the Apus 2000.

Model	Processor	Speed	RAM/Max RAM	Expansion	FPU	Price
Compact Macs						
Mac 128K	68000	8MHz	128K/not exp	None	No	N/A
Mac 512K	68000	8MHz	512K/not exp	None	No	N/A
Mac Plus	68000	8MHz	1Mb/4Mb	None	No	N/A
Mac SE	68000	8MHz	1Mb/4Mb	1 PDS	No	N/A
Mac Classic	68000	8MHz	1Mb/4Mb	None	No	N/A
Mac SE/30	68030	16MHz	1Mb/128Mb	1 PDS	Yes	N/A
Classic II (= Performa 200)	68030	16MHz	2Mb/10Mb	None	Optional	N/A
Color Classic	68030	16MHz	2Mb/10Mb	1 LC-PDS	Optional	N/A
Mac II Series						
Mac II	68020	16MHz	1Mb/68Mb	6 NuBus	Yes	N/A
Mac IIx	68030	16MHz	1Mb/128Mb	6 NuBus	Yes	N/A
Mac IIcx	68030	16MHz	1Mb/128Mb	3 NuBus	Yes	N/A
Mac IIvi	68030	16MHz	4Mb/68Mb	3 NuBus	Optional	N/A
Mac IIsi	68030	20MHz	1Mb/65Mb	1 NuBus/PDS	Optional	N/A
Mac IIci	68030	25MHz	1Mb/128Mb	3 NuBus	Yes	N/A
Mac IIvx (= Performa 600)	68030	32MHz	4Mb/68Mb	3 NuBus	Yes (not 600)	N/A
Mac IIfx	68030	40MHz	1Mb/128Mb	6 NuBus, 1 PDS	Yes	N/A
LCs						
Mac LC	68020	16MHz	2Mb/10Mb	1 LC-PDS	Optional	N/A
Mac LC II (= Performa 400)	68030	16MHz	4Mb/10Mb	1 LC-PDS	Third-party	N/A
Mac LC III (= Performa 450)	68030	25MHz	4Mb/36Mb	1 LC-PDS	Optional	N/A
Performas (non-PowerPC)						
Performa 475 (= LC475)	68LC040	25MHz	4Mb/36Mb	1 LC-PDS	Upgrade	N/A
Performa 630 (= LC630)	68LC040	33MHz	4Mb/36Mb	1 LC-PDS	Upgrade	N/A
Centris series						
Centris 610	68LC040	20MHz	4Mb/68Mb	1 NuBus/PDS	Upgrade	N/A
Centris 650	68040	25MHz	4Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
Quadra series						
Quadra 610	68040	25MHz	4Mb/68Mb	1 NuBus/PDS	Yes	N/A
Quadra 660AV	68040	25MHz	8Mb/68Mb	1 NuBus/PDS	Yes	N/A
Quadra 700	68040	25MHz	4Mb/64Mb	2 NuBus, 1 PDS	Yes	N/A
Quadra 900	68040	25MHz	4Mb/256Mb	5 NuBus, 1 PDS	Yes	N/A
Quadra 650	68040	33MHz	4Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
Quadra 800	68040	33MHz	8Mb/146Mb	3 NuBus, 1 PDS	Yes	N/A
Quadra 950	68040	33MHz	8Mb/256Mb	5 NuBus, 1 PDS	Yes	N/A
Quadra 840AV	68040	40MHz	8Mb/128Mb	3 NuBus	Yes	N/A
PowerMac Performas						
Performa 5200	PPC 603	75MHz	8Mb/64Mb	1 PDS	Yes	N/A
Performa 5260	PPC 603	100MHz	12Mb/64Mb	1 PDS	Yes	**£1,385**
Performa 6320	PPC 603	100MHz	12Mb/64Mb	1 PDS	Yes	**£1,431**
Performa 6200	PPC 603e	75MHz	8Mb/64Mb	1 PDS	Yes	N/A
Performa 5300	PPC 603e	100MHz	8Mb/64Mb	1 PDS	Yes	N/A
Family Mac 5400/160	PPC 603e	160MHz	16Mb/136Mb	1 PCI	Yes	**£1,801**
Family Mac 5400/180	PPC 603e	180MHz	16Mb/136Mb	1 PCI	Yes	**£2,129**
Home Office 6400/180	PPC 603e	180MHz	16Mb/136Mb	2 PCI	Yes	**£1,969**
Home Office 6400/200	PPC 603e	200MHz	16Mb/136Mb	2 PCI	Yes	**£2,033**
Creative Studio 6400/200	PPC 603e	200MHz	24Mb/136Mb	2 PCI	Yes	**£2,865**
Power Macintoshes						
PowerMac 6100/60	PPC 601	60MHz	8Mb/72Mb	1 NuBus/PDS	Yes	N/A
PowerMac 6100/66	PPC 601	66MHz	8Mb/72Mb	1 NuBus/PDS	Yes	N/A
PowerMac 7100/66	PPC 601	66MHz	8Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 7200/75	PPC 601	75MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerMac 7100/80	PPC 601	80MHz	8Mb/136Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 8100/80	PPC 601	80MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 7200/90	PPC 601	90MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerMac 7500/100	PPC 601	100MHz	16Mb/512Mb	3 PCI, 1 PD	Yes	N/A
PowerMac 8100/100	PPC 601	100MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 8100/110	PPC 601	110MHz	8Mb/264Mb	3 NuBus, 1 PDS	Yes	N/A
PowerMac 4400/160	PPC 603e	160MHz	16Mb/160Mb	3 PCI	Yes	**£1,108**
PowerMac 8200/120	PPC 601	120MHz	16Mb/256Mb	3 PCI	Yes	**£1,595**
PowerMac 8500/120	PPC 604	120MHz	16Mb/512Mb	3 PCI, 1 PD	Yes	N/A
PowerMac 9500/120	PPC 604	120MHz	16Mb/768Mb	6 PCI, 1 PD	Yes	N/A

Model	Processor	Speed	RAM/Max RAM	Expansion	FPU	Price
PowerMac 9500/132	PPC 604	132MHz	16Mb/768Mb	6 PCI, 1 PD	Yes	N/A
PowerMac 7600/132	PPC 604e	132MHz	16Mb/512Mb	3 PCI	Yes	£2,149
PowerMac 8500/180	PPC 604e	180MHz	16Mb/512Mb	3 PCI	Yes	£3,016
PowerMac 9500/200	PPC 604e	200MHz	32Mb/768Mb	6 PCI	Yes	£3,536
PowerMac 9500/180 MP	4xPPC 604e	180MHz	32Mb/768Mb	6 PCI	Yes	£4,367
DayStar Mac-compatibles						
Genesis MP400+	2xPPC 604e	200MHz	0Mb/1.5Gb	6 PCI	Yes	£4,994
Genesis MP600	4xPPC 604e	150MHz	0Mb/1.5Gb	6 PCI	Yes	N/A
Genesis MP720+	4xPPC 604e	180MHz	0Mb/1.5Gb	6 PCI	Yes	£8,518
Genesis MP800+	4xPPC 604e	200MHz	0Mb/1.5Gb	6 PCI	Yes	£9,986
Motorola Mac-compatibles (All available in desktop ("d") or mini-tower ("t") configuration)						
StarMax 3160	PPC 603e	160MHz	16Mb/*d*32Mb,*t*160Mb	*d* 3 PCI, *t* 5 PCI	Yes	*d*£1.291, *t*£1,585
StarMax 3200	PPC 603e	200MHz	16Mb/*d*32Mb,*t*160Mb	*d* 3 PCI, *t* 5 PCI	Yes	*d*£1,644, *t*£1,938
StarMax 4160	PPC 604e	160MHz	16Mb/*d*32Mb,*t*160Mb	*d* 3 PCI, *t* 5 PCI	Yes	*d*£2,466, *t*£2,701
StarMax 4200	PPC 604e	200MHz	16Mb/*d*32Mb,*t*160Mb	*d* 3 PCI, *t* 5 PCI	Yes	*d*£2,819, *t*£3,054
Power Computing Mac-compatibles						
Power 100	PPC 601	100MHz	16Mb/256Mb	3 NuBus	Yes	£1,092
PowerCenter 120	PPC 604	120MHz	16Mb/256Mb	3 PCI	Yes	N/A
PowerCenter 132	PPC 604	132MHz	16Mb/256Mb	3 PCI	Yes	£1,644
PowerCenter 150	PPC 604	150MHz	16Mb/256Mb	3 PCI	Yes	£1,879, £1,996
PowerWave 150	PPC 604	150MHz	16Mb/512Mb	6 PCI	Yes	N/A
PowerTower 166	PPC 604	166MHz	16Mb/512Mb	3 PCI	Yes	£2,349
PowerTower 180	PPC 604	180MHz	16Mb/512Mb	3 PCI	Yes	N/A
PowerTower 200	PPC 604	200MHz	16Mb/512Mb	3 PCI	Yes	N/A
PowerTower Pro 180	PPC 604e	180MHz	16Mb/1Gb	6 PCI	Yes	TBA
PowerTower Pro 200	PPC 604e	200MHz	16Mb/1Gb	6 PCI	Yes	TBA
PowerTower Pro 225	PPC 604e	225MHz	16Mb/1Gb	6 PCI	Yes	£3,989
Umax Mac-compatibles						
Apus 2000/166	PPC 603e	166MHz	16Mb/272Mb	2 PCI	Yes	£998
Apus 3000/200	PPC 603e	200MHz	16Mb/272Mb	3 PCI	Yes	£1,526
Apus 3000/240	PPC 603e	240MHz	16Mb/272Mb	3 PCI	Yes	£1,879
Pulsar 150 (was Pulsar 1500)	PPC 604	150MHz	16Mb/1Gb	6 PCI	Yes	N/A
Pulsar 166	PPC 604e	166MHz	16Mb/1Gb	6 PCI	Yes	N/A
Pulsar 200	PPC 604e	200MHz	16Mb/1Gb	6 PCI	Yes	£3,049
Pulsar 225	PPC 604e	225MHz	16Mb/1Gb	6 PCI	Yes	£3,519
Pulsar 180 MP	2xPPC 604e	180MHz	16Mb/1Gb	6 PCI	Yes	£4,111
Portables						
Macintosh Portable	68000	16MHz	2Mb/9Mb	Modem slot	No	N/A
PowerBook 100	68000	16MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 140	68030	16MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 170	68030	25MHz	4Mb/8Mb	Modem slot	Yes	N/A
PowerBook 145	68030	25MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 145b	68030	25MHz	4Mb/8Mb	Modem slot	No	N/A
PowerBook 160	68030	25MHz	4Mb/14Mb	Modem slot	No	N/A
PowerBook 150	68030	33MHz	4Mb/40Mb	Modem slot	No	N/A
PowerBook 165c	68030	33MHz	4Mb/14Mb	Modem slot	No	N/A
PowerBook 180	68030	33MHz	4Mb/14Mb	Modem slot	Yes	N/A
PowerBook 180c	68030	33MHz	4Mb/14Mb	Modem slot	Yes	N/A
PowerBook 165	68030	33MHz	4Mb/14Mb	Modem slot	No	N/A
PowerBook 520	68LC040	25MHz	4Mb/36Mb	Modem slot	Upgrade	N/A
PowerBook 520c	68LC040	25MHz	4Mb/36Mb	Modem slot	Upgrade	N/A
PowerBook 540	68LC040	33MHz	4Mb/36Mb	Modem slot	No	N/A
PowerBook 540c	68LC040	33MHz	4Mb/36Mb	Modem slot	No	N/A
PowerBook 190	68LC040	33MHz	8Mb/40Mb	2 PC card	No	N/A
PowerBook 190cs	68LC040	33MHz	8Mb/40Mb	2 PC card	No	N/A
PowerBook 5300	PPC 603e	100MHz	8Mb/56Mb	2 PC card	Yes	N/A
PowerBook 5300c	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes	N/A
PowerBook 5300ce	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes	N/A
PowerBook 5300cs	PPC 603e	100MHz	8Mb/64Mb	2 PC card	Yes	£1,609
PowerBook 1400cs/117	PPC 603e	117MHz	12Mb/64Mb	2 PC card	Yes	£2,080
PowerBook 1400c/117	PPC 603e	117MHz	16Mb/64Mb	2 PC card	Yes	£3,033
PowerBook 1400c/133	PPC 603e	133MHz	16Mb/64Mb	2 PC card	Yes	£3,466
Duos						
PowerBook Duo 210	68030	25MHz	4Mb/32Mb	Modem slot	With Dock	N/A
PowerBook Duo 230	68030	33MHz	4Mb/32Mb	Modem slot	With Dock	N/A
PowerBook Duo 250	68030	33MHz	4Mb/32Mb	Modem slot	With Dock	N/A
PowerBook Duo 270c	68030	33MHz	4Mb/32Mb	Modem slot	Yes	N/A
PowerBook Duo 280	68LC040	33MHz	4Mb/40Mb	Modem slot	No	N/A
PowerBook Duo 280c	68LC040	33MHz	4Mb/40Mb	Modem slot	No	N/A
PowerBook Duo 2300c	PPC 603e	100MHz	8Mb/56Mb	Modem slot	Yes	£3,310
Duo Docking Stations						
PowerBook Duo MiniDock	-	-	-	None	No	N/A
PowerBook Duo Dock	-	-	-	2 NuBus	Optional	N/A
PowerBook Duo Dock II	-	-	-	2 NuBus	Yes	N/A
PowerBook Duo Dock Plus	-	-	-	2 NuBus	No	£798

Performa 5200

The compact Mac with its 9-inch mono screen may be gone for good, but the concept of a simple all-in-one Macintosh didn't die with it. Within a year of the launch of the first PowerMac came the Performa 5200. Like other Performas, it was designed for beginners and home users. Unlike other models, it went back to the concept of an integral CPU and monitor. There are many advantages: it's easier to move around, there are far fewer cables to get tangled and the machine is easier to set up. Upgrades are harder, certainly – though the motherboard slides out on a little drawer so you can add more RAM, it's hard to get at anything else inside – but Performas are rarely very upgradable anyway. Only the fuzzy 15-inch screen Apple chose to build in lets down an otherwise neat package.

PowerPC Performas

The first Performas with PowerPC chips have several minor variations which offer essentially the same computing power as each other, so be sure to compare prices closely. The 5200 and 6200 are the same Mac in different cases – the "5" denotes an all-in-one case, while "6" models separate the CPU and monitor. Later models like the 5260 and 6320 follow this convention but offer slightly faster processors.

Contacts

For models still officially on sale, we've listed the current estimated street prices in the UK. All prices include VAT.

Prices are changing fast at the moment, and there are plenty of bargains to be had as older models are phased out. Contact the supplier below for the range you're interested in.

You can certainly expect plenty of new machines to be announced at January's Expo in San Francisco, with ambitious plans from Apple, Power and Umax. Look out for all the details in next issue's MACFORMAT News.

- **Apple Computer**
  Apple: 0800 127753
- **DayStar: Computers Unlimited:**
  0181 358 5857
- **Motorola**
  Motorola: 01628 763200
- **Power Computing**
  MCM: 0171 724 4104
- **Umax**
  IMC Computer: 01344 871344

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4mm 120m DAT Tapes	£14.45
74 min CD recordable 650Mb	£5.95

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Personal 300, 320	£47.95
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Labtec 1224 10watts/45Hz/20khz	£59.00

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HP DeskWriter 340 Col Inkjet 3 pages	£159.00
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HP LaserWriter 4MV A3 Laser 16 pages	£2099.00
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S12 Vista	1200x600dpi	Optional	Option	£399.00
Powerlook II	1200x600dpi	Yes	Full	£1449.00
Powerlook 2000	1000x2000dpi	Yes	Full	£2995.00
Mirage A3	1800x800dpi	Yes	Full	£5495.00

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SMC Hub 100-24 Port	£1949.00
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SMC EtherEZ Hub 5-Port	£89.00
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SMC EtherEZ Hub 16-Port	£279.00
SMC Ether Adapter Etherpower PCI Combo Card	£69.00

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Modular Tech V.34 Modem (PC)	£79.00

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Leonardo XL PCI 4 Channel ISDN card PCI	£1495.00
Leonardo XL Nubus 4 Channel ISDN card Nubus	£1495.00
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Leonardo SP Nubus 2 Channel ISDN card Nubus	£995.00
Pinocchio Std LC Card 2 Channel ISDN card LC Machine	£595.00
Pinocchio Std LC Card 2 Channel ISDN LC machines	£895.00
Hermstedt Andante Ext. ISDN adapter - no slot	£495.00
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Plasmon InCat for Mac and PC	£ 79.00
Plasmon Toast for Mac	£ 119.00
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Retrospect Backup Software	£ 99.00
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3000/200 Desktop	603e	16Mb	1.2Gb	£1379
3000/200 Minitower	603e	32Mb	2.5Gb	£1549
4000/160 Desktop*	604e	32Mb	2.5Gb	£1949
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* extra £200 for 200 Mhz model

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Viewsonic 20G	20in	1600x1200 pixels	£799
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Description	Prices
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- Built-in Ethernet
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Description	Prices
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- 180Mhz PPC 604e processor (upgradable to 250Mhz)
- 16Mb RAM (upto 512Mb)
- Fast 2Gb Hard Drive
- 2Mb Fast 64bit VRAM up to 4Mb (1280x1024)
- Fast SCSI bus (up to 10Mb/s)
- Internal 8x CD Rom
- 3 PCI expansion slots
- Built-in Ethernet
- 256k Level 2 cache

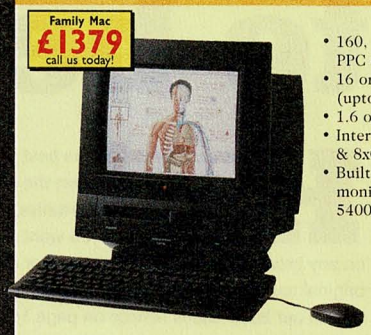
Description	Prices
8500/180 16/2Gb/CD	£2299

PowerMac 9500

- One 200Mhz or Two 180Mhz PPC 604e processors
- 32Mb RAM (upto 768Mb)
- Fast 2Gb Hard Drive
- 2Mb Fast 64bit VRAM up to 4Mb (1280x1024)
- Fast SCSI bus (up to 10Mb/s)
- Internal 8x CD Rom
- 6 PCI expansion slots
- Built-in Ethernet
- 512k Level 2 cache

Description	Prices
9500/200 32/2Gb/CD	£2699
9500/180MP 32/2Gb/CD	£3359

Performa Range



- 160, 180 or 200Mhz PPC 603e processor
- 16 or 24Mb RAM (upto 136Mb)
- 1.6 or 2.4Gb Hard Drive
- Internal 28.8k modem & 8xCDRom
- Built in 15in AV monitor on Performa 5400 (832x624 pixels)
- 1024x768 pixels on Performa 6400
- Mouse & keyboard
- Apple TV option (standard on 5400/180)
- FREE software, including Claris Works, Apple Internet Kit, Grolier Encyclopedia, and Disney CD Collection

Description	Prices
Family Mac 5400/160 16/1.6Gb/CD	£1379
Family Mac 5400/180 16 1.6Gb/CD/TV	£1629
Home Office 6400/180 16/2.4Gb/CD	£1269
Home Office 6400/200 16/2.4Gb/CD	£1559
Creative Studio 6400/200 24/2.4Gb/CD	£1899

UMAX Apus

- Choice of 3 Models:
- 166 to 240Mhz
- PPC 603e processor
- 16Mb RAM, expandable to 272Mb
- 1.2Gb to 2Gb Hard Drive
- 8 x speed SCSI CD ROM
- Includes Keyboard and Mouse

Description	Prices
Apus 2000/166 16/1.2Gb/CD	£849
Apus 3000/200 16/2Gb/CD	£1299
Apus 3000/240 16/2Gb/CD	£1399

UMAX Pulsar

- Choice of 3 Models:
- 180 to 225Mhz
- PPC 604e processor
- 16Mb RAM, expandable to 1Gb
- 2Gb Hard Drive
- 8 x speed SCSI CD ROM
- 6 PCI slots
- Includes Keyboard and Mouse

Description	Prices
Pulsar 180MP 16/2.1Gb/CD	£3195
Pulsar 200 16/2.1Gb/CD	£2595
Pulsar 225 16/2.1Gb/CD	£2995

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Buyer's guide to best buys

Buying Advice

When you buy goods by mail order, there are certain basic precautions you should take to protect yourself. The vast majority of transactions can be made to go smoothly and without problems, and when problems do occur, a few simple measures can make them much easier to sort out. Many of these precautions also apply when you're buying from a shop.

You need it by when?

If you need your new hardware or software to be delivered by a set date, you need to shop around a bit more carefully because you're not just searching on price, but availability too.

There's a common belief that mail order companies are obliged to supply you with the goods within 28 days of the date of your order. Not true. Normally they should, but in fact there is no maximum wait, unless you can demonstrate that the delay is "unreasonable" – and unless you stipulated a date with the supplier, you'd find it pretty hard to build a legal case against one that failed to supply a computer within 30 days, 60 days or even 90 days – especially if the supplier insists you were told that the item "would have to be ordered".

If you must have your new product by a set date, either buy it from a supplier that has it in stock, or buy from a retailer.

Other sensible precautions

- If you are buying goods worth more than £100 in total, use a credit card if you can. Then, if anything goes wrong, you'll be legally entitled to claim against the credit card company as well as the seller. Otherwise, pay by cheque or postal order. Never send cash – it is impossible to trace if it gets lost, you can't stop payment and, even if you have proof of posting, it is impossible to prove how much you sent. And keep records, including the name of the person who took your order, the time and an order number. And – obviously – keep all the receipts.
- Shop around for the best price. Always check what is included – how about packing and delivery, any necessary cables and so on? By law, an advert must state explicitly if VAT is *not* included in the price; if it doesn't, VAT *is* included. But this can be in the small print, so check carefully.
- When you buy in person, check that everything is there and that it all works properly before you leave the shop. Make sure all the connectors fit and get the whole system up and running. If you've ordered by mail, check the goods carefully when they arrive. Delivery companies often demand that you sign a slip saying you've received everything "in good order and condition", but it's impractical to expect them to wait while you check. However, you can add some note like "Accepted subject to inspection of contents"

Here's how to find the best Mac hardware and software buys on the market, based on MACFORMAT's authoritative, independent product tests. If you want more information on any product, ring the contact listed or refer to our original review – if you need to order an issue you missed, turn to our back issues service on page 144.

The details listed are those of the current version of each product. All prices quoted are list prices (RRPs), *including* VAT – check the ads in this issue for the best current deals on whatever you're interested in. Where we reviewed an earlier version of a product, this is noted in the comment line. Although we quote the ratings from our original review, the comments about each item are based both on that review *and* how we see the product now.

QuarkXPress might be as good now as when we reviewed it in MACFORMAT 24, but the competition has come on.

Note that some details may have changed since we first reviewed these products – hardware in particular is updated and improved regularly. The information here has been thoroughly checked and is correct as we go to press, but prices and specifications can change at any time. We recommend you always make enquiries before you buy, to verify the product you're considering will meet your needs.

The MACFORMAT Buyer's Guide aims to provide you with a one-stop, up-to-date directory of Mac products worth buying. You can help keep it authoritative, by passing on any corrections or updated details you know of. Write to us at the editorial address on page 141, or e-mail **macformat @futurenet.co.uk** with "Buyer's Guide" in the subject line.

Storage media

What do you do when your hard disk is full to the brim? Or when you need to transport hundreds of megabytes of data and there's no fast network link available? External storage devices can provide much-needed extra storage capacity, or a portable storehouse for vast quantities of data.

Name	Price	Rating	Reviewed	Contact	Telephone
Electronique d2 2Gb AV HD	£512	90%	MF43	Electronique d2	0171 833 0009
MACFORMAT Classic: Very stylish external hard disk with minimal documentation; basic driver software, but lightning-fast performance.					
Gasteiner 1Gb HD	£293	90%	MF34	Gasteiner	0181 345 6000
MACFORMAT Classic: Fast, cheap and compact storage medium, but with a fan that gives neighbours the impression you're testing rockets in your bedroom.					
Iomega Zip Drive	£117	81%	MF43	Iomega	0800 973194
Well-established, cheap 3.5-inch 100Mb drive that feels a bit creaky and is looking rather slow in this day and age. It might still replace the floppy disk as the most ubiquitous form of storage.					
MicroNet 2.6Gb MO	£1,527	88%	MF43	MicroNet	01926 470460
Steel-cased MO drive. Speed good but not outstanding, and we had problems mounting a 1.3Mb cart.					
MicroNet Jaz Drive	£469	94%	MF43	MicroNet	01926 470460
MACFORMAT Classic: The successor to the Zip drive uses astonishing 1Gb 3.5-inch cartridges and is fast, portable and cheap. Wonderful. This is a version MicroNet has licensed from maker Iomega.					
Olympus 230Mb PowerMO	£351	91%	MF43	Mac & More	01442 878900
MACFORMAT Classic: Compact 3.5-inch magneto-optical drive that's neat, fast, cheap, and comes with a long-term warranty and good software.					
Olympus 2600 PowerMO	£1,878	89%	MF43	Mac & More	01442 878900
Fast and fairly compact, but pretty expensive compared to its rivals. Comes with a three-year warranty.					
ONE Tech 2.6 Optical Drive	£1,268	95%	MF34	MacTrix	0181 566 8988
MACFORMAT Classic: Pretty fast, quiet, inexpensive and hard to fault. Oh, and the documentation is good too. If only they could do something about the styling. We reviewed the ONE Tech 1.3Gb MO.					
Performance Direct 2Gb	£375	92%	MF43	Performance Direct	01784 477477
MACFORMAT Classic: Inexpensive and functional-looking hard disk which comes with excellent driver software and performs extremely well.					

Name	Price	Rating	Reviewed	Contact	Telephone
Quantum Fireball 1.2Gb HD	£269	88%	MF34	Performance Direct	01784 477477

Very quiet, very fast and a good-length SCSI cable. We reviewed the Quantum Fireball 1Gb HD.

SyQuest 230Mb	£270	94%	MF34	SyQuest	0131 339 2022

MACFORMAT Classic Uses 3.5-inch 135Mb cartridges and is extremely fast. The power supply is an annoying blob that sits next to the drive and the manual is tatty. We reviewed the SyQuest EZ135.

Xyratex 5000 2.6Gb	£1,409	90%	MF43	Performance Direct	01784 477477

MACFORMAT Classic Reasonable performance and good value for money from this big slab of a drive. Good documentation and generous-length SCSI cable.

Monitors

Not all monitors are the same. How sharp is your picture? Are the colours crisp and true to life? What resolutions are available? Is there any distortion? We've tested both 15-inch and 17-inch models from a number of manufacturers, and one thing they have in common is their weight. See page 58 for a look at the light, slim monitors of the future.

Name	Price	Rating	Reviewed	Contact	Telephone
AppleVision 1710	£927	92%	MF40	Apple	0800 127753

MACFORMAT Classic 17-inch monitor with easy controls, overscan (no black borders) and superb picture quality – plus colour calibration software.

Hitachi 17MVX Pro 2	£704	85%	MF40	Hitachi	0800 605 605

Good performance even at high resolutions, although setting up the screen could get fiddly and tedious.

Iiyama Pro 17-inch	£735	89%	MF40	Iiyama	01438 745482

The DiamondTron screen provides excellent quality even at the staggering maximum resolution of 1,600 x 1,200.

Mitsubishi 17HX	£758	83%	MF40	Mitsubishi	01707 276100

Good quality except at the highest resolution, and comes with an anti-moiré function. The manual could be more helpful.

Samsung 17GLsi	£822	84%	MF40	Samsung	0800 521 652

A 17-inch unit with a maximum resolution of 1,280 x 1,024 and a Trinitron tube. Excellent quality at all resolutions.

Sony 15sfII	£465	91%	MF40	Sony	0181 760 0500

MACFORMAT Classic Unusually for a 15-inch monitor, the Sony provides superb picture quality at all resolutions, thanks to its Trinitron tube, great-looking design and fuss-free setting up.

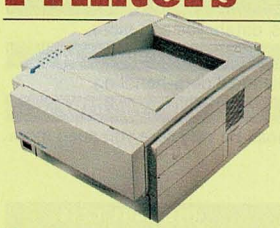
Sony 17sfII	£763	92%	MF40	Sony	0181 760 0500

MACFORMAT Classic Picture quality is excellent at all resolutions, setting up is easy and the manual is excellent – a rival to Apple's own AppleVision 1710.

Taxan Ergo Vision 730TCO	£735	84%	MF40	Taxan	01344 484646

This 17-inch monitor offers good picture quality and is easy to set up. We reviewed the Taxan Ergo Vision 730LR.

Printers



Are you shopping for a mono printer or colour? Portable or desktop? PostScript or non-PostScript? Inkjet or laser? We've reviewed dozens of printers for every need, and here is our pick of the best. Don't forget to shop around for the best prices, since these change continually (usually downwards). For more on what to look for, see MACFORMAT 38.

Name	Price	Rating	Reviewed	Contact	Telephone
ALPS MD-2010	£529	90%	MF45	Rotec Distribution	01604 402012

MACFORMAT Classic Slow and clackety though it might seem, the MD-2010 produces quite superb colour and definition – but only on high quality paper.

Apple StyleWriter 1500	£275	90%	MF38	Apple	0800 127753

MACFORMAT Classic For the price, excellent colour performance even on plain paper. Its budget background begins to show on coated and glossy papers, though.

Apple StyleWriter 2500	£359	84%	MF38	Apple	0800 127753

A big improvement on its predecessor, the 2400, but not quite in the same league as colour rivals from HP and Epson.

Citizen PN60	£340	82%	MF27	Citizen	01753 584111

Minute portable printer that can output in colour. The size makes the controls fiddly, though, and performance is suspect.

Buying Advice continued

when you sign for the goods. If there's anything you're not happy with, don't use the product – if you do, you could be deemed to have accepted it.

- Whether you bought it by mail or in a shop, the law says a product must be of satisfactory quality (in other words, broadly speaking, it must work), be as described, and be fit for the purpose for which it was sold. These stipulations are laid down in the Sale of Goods Act, and they are the "statutory rights" that sellers cannot alter or deny. If your product fails to meet any or all of these criteria, return it to the supplier and insist on a refund.
- If you buy a product that is either completely broken or doesn't work fully, you have two choices. If the supplier offers a convincing argument that it can be repaired promptly and adequately, you may be prepared to wait while they take it back and sort it out. Otherwise you can reject it outright and either claim a replacement or a refund. If you want a refund you need to act promptly – as soon as you could reasonably be expected to notice the defects – otherwise you might be deemed to have "accepted" the goods as they are, defects and all.

How to complain

If you're not happy about something, always contact the supplier first and politely explain your problem. Most companies will do their best to help, if only because they need your custom. Be patient; if there's some technical problem, it may genuinely take the dealer some time to find the solution. Most difficulties are sorted out at this stage without further fuss.

If yours isn't, put your complaint in writing, clearly stating your problem and what you'd like done. Give the firm a reasonable time to reply – say 14 days or so.

If your complaint is not resolved or you feel that the dealer is not being reasonable, you may need to take some sort of legal action to enforce your rights. This need not cost you a lot of money. Seek advice from a solicitor (ask about the free advice scheme – you may not have to pay for the initial consultation). Or contact one of the following (check your local phone directory for contact details):

- Citizen's Advice Bureau – for general advice on your rights as a consumer, information about your options, help drafting effective letters and so on.
- Trading Standards Office (listed under your local council) – for help when you feel that an advertisement was misleading or that a dealer is acting improperly.
- Office of Fair Trading – for help when you believe that a dealer is not treating you fairly.
- County Court – ask about the "small claims" procedure if you are convinced that you have explored every avenue with the dealer and are sure you want your money back.

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Product News

New 17-inch monitor

Taxan has launched a new people-friendly 17-inch monitor called the **Ergovision 750 TCO95**. TCO95 is apparently "the world's most stringent standard for environmental labellin'", which means that it has good ergonomics, low electromagnetic emissions, is energy-efficient and doesn't use wasteful production processes.

Based on a 0.25mm-pitch Diamondtron tube, the 750 is claimed to offer better focussing, including **corner focussing**, and saturated colours combined with high contrast. It's a **multisync** model capable of 1,280 x 1,024 resolution at a refresh rate of 80Hz.

The RRP is **£915**, but you can expect **street prices** in the region of **£677**. Call **Taxan** on **01344 484646** to find out more, or visit the Web site at **http://www.taxan.co.uk**

New digital camera

Ricoh's new **RDC-2** has a resolution of **768 x 576 pixels** and will cost around **£850** in the shops. For an additional **£150** you can get a version with a built-in **1.8-inch LCD "monitor"**. With **2Mb** of internal memory, the RDC-2 can store up to **nine pictures** in **"fine detail" mode** or **38** in **"economy" mode**. Optional PCMCIA (PC Card) memory cards increase these figures approximately tenfold. You can also add up to **ten seconds of commentary** to each shot.

Pictures are transferred to your Mac by cable, and you can then set about editing them with the ***Photo Studio*** software bundled with the camera.

To find out more, call **Johnsons Photopia** on **01782 717100** or visit the Web site at **http://dialspace.dial.pipex.com/techniques/RDC-2/**

Acrobat 3 here at last?

After a long, long wait, **Adobe** has announced the availability of ***Acrobat 3.0***, the latest version of its "portable document format" application. *Acrobat* enables you to convert any document into a **PDF file** while retaining all the original formatting, graphics and fonts – a file that's visually indistinguishable from the original. These PDF files can then be read by anyone with the freely-available ***Acrobat Reader***. It's an excellent way of distributing documents to people who either don't have or can't run the original application. PDF files can have **annotations**, **bookmarks** and **links** attached to them.

Version 3 is aimed at anyone producing documents for the **Internet** or **CD-ROM**. To improve Internet

➤ page 134

Name	Price	Rating	Reviewed	Contact	Telephone
Epson EPL-5500	£469	89%	MF39	Epson	01442 61144

Compact and light 600dpi PostScript printer with a useful 5Mb of RAM. Documentation is turgid, though, and you'll need to buy a lead for your Mac.

Epson EPL9000	£2,055	84%	MF29	Epson	01442 61144

A3 600dpi PostScript printer that provides good quality output from a surprisingly compact box.

Epson Stylus Pro	£513	90%	MF38	Epson	01442 61144

MACFORMAT Classic Built like a breeze block, but offers stunning smoothness and resolution, even though greens turned a bit muddy. Almost as good as a dye-sub printer.

FotoFUN! Printer	£493	87%	MF31	Bannerbridge	01268 419101

Affordable, good quality dye-sub colour output. Takes up little space but only prints out 6-inch x 4-inch snapshots.

HP LaserJet 5MP	£1,198	95%	MF29	Hewlett Packard	0990 474747

MACFORMAT Classic 600dpi PostScript laser printer with excellent greyscale and resolution enhancement for remarkable output quality at the price.

HP DeskJet 340	£235	85%	MF27	Hewlett Packard	0990 474747

Portable 300dpi inkjet with colour capability and excellent output quality. Clear leader amongst the portables at this price. We reviewed the HP DeskWriter 320.

HP 870cxi	£494	92%	MF38	Hewlett Packard	0990 474747

MACFORMAT Classic First-rate colour balance, excellent contrast and very good performance on plain paper is combined with good value. It's a winner! We reviewed the HP 850C.

NEC SuperScript 3000	£1,115	88%	MF35	NEC	0345 404020

Three different printing technologies at a bargain price, but second-division quality and long print times.

Tektronix Phaser 140	£1,351	88%	MF38	Aztec Associates	01274 590 555

Affordable PostScript colour printer. Colour and definition nearly on a par with non-PostScript models.

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Office

Most Macs are used at one time or another in the office or study, using worthwhile applications like word processors, databases and spreadsheets. There are many related productivity applications, too, like personal organisers and presentation packages. Here's our pick of the best.

Name	Price	Rating	Reviewed	Contact	Telephone
Act 2.5	£199	86%	MF36	Symantec	01734 814 230

Feature-heavy contacts manager that works well in sales offices, but lacks flexibility as a personal organiser.

ClarisImpact 2	£152	86%	MF34	Claris	0181 756 0101

Combines spreadsheet functions with charting, outlining and DTP for the ultimate low-end business presentation suite.

ClarisWorks 4.0	£152	92%	MF31	Claris	0181 756 0101

MACFORMAT Classic The Mac's standard all-in-one office suite. Inexpensive yet very powerful in the right hands, and highly flexible too. Get it and use it.

Excel 5	£220	87%	MF18	Microsoft	0345 002000

The only professional spreadsheet package on the Mac boasts 3D documents, pivot tables, databases and more.

Expresso 1.0	£20	89%	MF31	Softline	0181 401 1234

Personal organiser that makes up for in charm and value what it lacks in high-powered relational data-handling.

FileMaker Pro 3.0	£234	96%	MF37	Claris	0181 756 0101

MACFORMAT Classic An excellent database that's been tweaked and tuned, and is now fully relational. Be very sure you need more power before shopping elsewhere.

Let's KISS	£153	91%	MF41	Softline	0181 401 1234

MACFORMAT Classic As a piece of software design, so far ahead of traditional spreadsheets and feeling so right that you wonder why no-one thought of it sooner.

Microsoft Office	£469	73%	MF46	Microsoft	0345 002000

A colossal powerhouse in all senses, but this doyen of the business world is expensive and has some surprising gaps. Includes *Word 6* and *Excel 5*.

Organiser 2	£81	86%	MF46	Claris	0345 413060

Can handle links between information both internally and to the Net, and is flexible and robust – no networking, though.

Up-to-Date & Contact 3.5	£116	89%	MF31	Now! Software	01525 237001

Dynamically-linked duo of contacts manager and diary. Occasionally a little too complex for its own good.

Word 6.0.1	£220	92%	MF20	Microsoft	0345 002000

MACFORMAT Classic The world's favourite word processor has a monumental feature list but a bewildering array of controls, toolbars and gadgets that make it feel simply top-heavy. We reviewed *Microsoft Word 6.0*.

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'Steinberg's Virtual Studio Technology harnasses the incredible power of Apple's Power Macintosh computers to deliver a pro quality Multitrack Recording Studio which does not rely on any external hardware. Unfortunately for PC Owners, VST runs ONLY on Apple Power Macs - NOT 486 or Pentium'

MacMusic Package 1 — ***£2,879*** +VAT (£3,383)
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PowerMac 4400/160 16/1.2G CD (x8)	**£899**	+VAT (£1056)
PowerMac 7600/132 16/1.2G CD (x8) L2	**£1699**	+VAT (£1996)
PowerMac 8500/180 16/2G CD (x8) L2	**£2369**	+VAT (£2784)
PowerMac 9500/200 32/2G CD (x8) L2	**£2769**	+VAT (£3256)
PowerMac 9500/180MP 32/2G CD (x8) L2	**£3399**	+VAT (£3994)

Used PowerMacs

PowerMac 6100/66 8/500 CD L2	£599	+VAT (£704)
PowerMac 7100/80 16/500 CD L2	£899	+VAT (£1056)
PowerMac 7200/90 8/500 CD	£759	+VAT (£892)
PowerMac 8100/100 16/1000 CD L2	£1099	+VAT (£1526)

Yamaha x4 CD Writer	*£649*	+VAT (£763)
Sony SD5000 4Gb DAT	*£579*	+VAT (£680)
Barracuda - 2Gb Ext. HD	*£399*	+VAT (£469)

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Product News continued

support, Adobe has integrated *Acrobat* with the leading Web browsers, *Netscape Navigator* and *Internet Explorer*, via **plug-ins** and **ActiveX** controls. The compression system has been improved to shorten downloading times, and you will be able to **download a page at a time** rather than committing yourself to the entire document. There's support for full text-searching on the Web, and even **optical character recognition** to convert paper documents into PDFs.

Acrobat 3 will sell for around **£187**, but existing users will be able to upgrade for £69. You can find out more by calling **Adobe** on **0181 606 4000** or by visiting the Adobe Web site at **http://www.adobe.com**

Cheaper Apples

Apple has announced price reductions on three of its products. The **QuickTake 150** will now sell for **£469**, the **Colour OneScanner 600/27** will be **£417**, and the **LaserWriter 12/640** will sell at **£1409** – and you'll get a **£200 discount** if you trade in your old laser printer, going up to **£300** if you opt for the 12/640's optional **Duplex Printing Unit** or **500 Sheet Cassette and Feeder** (both £330). Visit your local Apple reseller for more, or call **Apple** on **0800 127753**.

New musical effects

Arboretum has released two **plug-in versions** of its ***Hyperprism*** application. ***Hyperprism-MMP*** is designed for programs which use *Adobe Premiere* plug-ins, while ***Hyperprism-VST*** is for those using *Cubase VST* Virtual Studio Technology.

The two-dozen effects include "reverbs, pitch shifting, sweepable resonant filters, modulation, stereo enhancers, dynamic compression, delays and more". Usefully, the effects can be applied in real-time via the software's **Blue Window** interface, rather than having to be preset.

Both versions of the *Hyperprism* plug-ins cost **£266**, and you can find out more by calling **UnityAudio** on **01920 822890**.

PowerBook connectivity

PowerBook users who don't want cables trailing across the floor when they **connect to a network** or another Mac have been able to use Farallon's **AirDock** infrared connector and software. The AirDock software, though, is not compatible with **Open Transport**. Now, however, Farallon has arrange to supply Apple's **LocalTalk Bridge** software to fill the gap (so to speak). You can find out more from the UK

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Graphics

From image-manipulation to professional illustration to 3D design and raytracing, here's our pick of the top Macintosh graphics packages.

Name	Price	Rating	Reviewed	Contact	Telephone
Bryce 2	£234	93%	MF38	Principal	01706 832000

MACFORMAT Classic 3D landscape creation tool that's more versatile than its predecessor and can create indoor scenes too. Easy (by the standards of 3D software) and capable of breathtaking results.

CorelDraw 6	£465	91%	MF44	Channel MM	01703 814142

MACFORMAT Classic You need a PowerMac, you need plenty of RAM, you need hundreds of megabytes of disk space: but, if you have all of these, *CorelDraw* is great.

Dabbler 2	£59	90%	MF35	CU	0181 358 5857

MACFORMAT Classic Natural media painting program for those awed by multi-layered dialogues and complex options. Backed up with lots of CD-ROM resources.

Detailer	£328	85%	MF46	Principal	01756 704040

Detailer is powerful, fast and satisfies a genuine need for a form of direct 3D image mapping every artist can understand.

Extreme 3D 1.0	£645	86%	MF39	CU	0181 358 5857

Brilliant Bézier modelling, visible light beams and fast rendering. A steep learning curve but good documentation.

FreeHand 5.5	£529	80%	MF33	CU	0181 358 5857

A big step forward from previous versions and still superior to arch-rival *Illustrator*. Some minor gripes remain, though.

Illustrator 6	£376	80%	MF37	Adobe	0181 606 4000

The latest version of this vector-based professional illustration package is nearly on a par with its great rival *FreeHand*.

Infini-D 3.5	£469	85%	MF42	Gomark	0171 731 7930

3D modelling, rendering and animation package that's easy to use but produces rather crude and mechanical results.

Kai's Power Goo	£58	90%	MF41	Principal	01706 832000

MACFORMAT Classic Provides many of the image manipulation tools of professional graphics applications, but is cheaper than many *Photoshop* plug-ins! Possibly the best fun you'll have with a graphics package.

Live Picture 2.5	£934	85%	MF38	IMC	01344 871 329

A kind of super-*Photoshop* with an unusual interface but excellent compositing. Not as RAM-hungry as *Photoshop*.

Painter 4	£469	91%	MF35	CU	0181 358 5857

MACFORMAT Classic Blends traditional painting tools and media with mouse pointers and Bézier curves. Too arty for some, too amateur for others, but we rate it.

PhotoDeluxe	£88	85%	MF39	Adobe	0181 606 4000

Innovative and powerful photo manipulation package at a bargain price – if you've got the hardware needed to run it.

Photoshop 3.0	£738	90%	MF22	Principal	01706 832000

MACFORMAT Classic The market-leading professional image-manipulation program. Offers an unrivalled range of tools and plug-in effects, but needs serious amounts of RAM.

Ray Dream Studio 4.0	£222	89%	MF39	Principal	01706 832000

Easy to use with brilliant modelling and Scene Wizards, but very slow. Clear documentation and a bargain price.

StrataStudio Pro 1.75	£1,169	92%	MF34	Principal	01706 832000

MACFORMAT Classic Creates complex geometries, resulting in detailed and realistic stills and animations. It's at the forefront of 3D software technology.

xRes 2	£645	91%	MF38	CU	0181 358 5857

MACFORMAT Classic Heavyweight graphics package aimed at a market beyond *Photoshop*, but using less RAM. Wonderful interface but no compositing.

Desktop publishing

Professional print publishing is still dominated by *QuarkXPress* and *PageMaker*, but this category also includes Web page design, electronic publishing in general, and various publishing utilities.

Name	Price	Rating	Reviewed	Contact	Telephone
PageMaker 6	£605	91%	MF32	Adobe	0181 606 4000

MACFORMAT Classic It can do everything that *QuarkXPress* can do at about half the price. Text-handling is a bit creaky, but layout and design is clean and simple.

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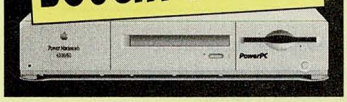

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Product News continued

distributors, **Gomark**, on **0171 731 7930**. The extra software is now included with the AirDock package, but existing users can download a free upgrade from the Farallon Web site at **http://farallon.com/product/pn/AirDockOT.html**

Faster CD-ROM drives

Hitachi has just announced the availability of **16x speed** CD-ROM drives to complement its existing CDR-7930 8X 8x speed drive. The new CDR-8130 16maX uses "Partial-CAV technology", where the disc rotation speed is fixed for the outer portions of the disc. This has the benefit of reducing access time because the rotational speed needn't be adjusted for each head movement.

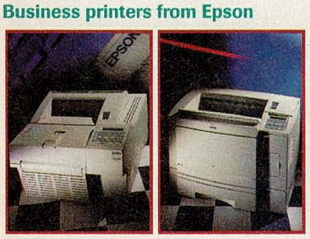
The new drive is available to hardware manufacturers now and could soon be appearing on the Mac market – but if you're prepared to wait until the middle of 1997, we predict that **20x speed** CD drives may be available.

To find out more about the new **CDR-8130 16maX**, call **Hitachi** on **01628 585000**.

Looking black

If you own a Hewlett Packard **Deskjet 660** inkjet printer, you're probably dreading the day the **black ink cartridge** runs out – because you have to buy a complete printhead and cartridge assemby when it does. Unless you buy a replacement cartridge from **Pelikan**, which specialises in inkjet cartridge replacements. Find out more about inexpensive cartridge replacements by calling **Pelikan** on **01494 551300**.

Business printers from Epson



The new Epson **EPL-N1200** offers **600dpi** printing but with a proprietary resolution-enhancement system from Epson, called ***BI-RITech,*** that offers **1,200dpi quality**, it's claimed.

The EPL-N1200 has an RRP of £1300, but the street price will be nearer to **£800** – though you'll have to add £150 for a **LocalTalk adaptor**.

Further up the scale, the **EPL-2000** is for networked "workgroups" and can churn pages out at the rate of 20 per minute, with the same 600dpi output

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Name	Price	Rating	Reviewed	Contact	Telephone
QuarkXPress 3.32	£1,169	88%	MF25	CU	0181 358 5857

The market-leading professional DTP package marches on relentlessly with its excellent text-handling and XTensions. We reviewed *QuarkXPress 3.31.*

UniQorn 1.01	£1,052	80%	MF40	Principal	01706 832000

QuickDraw GX DTP application that does things *XPress* and *PageMaker* can only dream of. Needs hardware power,

System enhancers

Whatever Apple does to the System and Finder, there will always be programmers who think they've got a better idea – either a quicker, more efficient way of doing something, or an enhancement to the Mac's interface that makes it better-looking, more user-friendly or simply a lot more fun.

Name	Price	Rating	Reviewed	Contact	Telephone
The Little Mac Toolkit	£35	89%	MF28	Addison Wesley	01279 623 623

A disc packed with useful (and not-so-useful) shareware and freeware combined with a very good manual.

OneClick	$89	91%	MF35	WestCode Software	00 1 619 487 9200

MACFORMAT Classic Create floating palettes for launching applications and opening files, and set up short-cut macros for your favourite applications. Real power.

PopupFolder 2.0	£46	87%	MF35	Softline	0181 401 1234

Hierarchical folder menus up to 16 levels deep both in the Finder and in **Find** and **Save** dialogue boxes. Paradise!

RAM Doubler 2	£71	92%	MF43	CU	0181 200 8282

MACFORMAT Classic As long as you have a modern Mac, *RAM Doubler* is such an essential utility you'll wonder how you coped without it.

Multimedia authoring

As business presentation packages start to offer the features of multimedia authoring kits, and as authoring kits are used more and more by businesses looking for presentations with more polish, the boundaries are becoming blurred – hence the umbrella title "multimedia authoring" used here. This includes animation and video too.

Name	Price	Rating	Reviewed	Contact	Telephone
Astound	£222	91%	MF36	Gold Disk	01734 814230

MACFORMAT Classic A top presentation tool which makes handling quite complex actions easy. Surprisingly competent at general multimedia authoring.

Authorware Academic	£150	95%	MF43	Prentice Hall	01442 257115

MACFORMAT Classic Icon-based multimedia creation at its finest, this power-packed program is ideally suited to lecturers as well as students. Just as well, as they're the only people who can buy it.

Director 5.0	£1,174	85%	MF41	CU	0181 358 5857

A sound upgrade to the industry leader for media authoring, which irons out many shortcomings. It's easier to use, too.

Director Academic	£46	95%	MF43	Prentice Hall	01442 257115

MACFORMAT Classic De-facto standard for multimedia creation in a cut-down version – for educaion only. Powerful and versatile but complex, especially with its Lingo scripting language.

Elastic Reality 1.21	£293	90%	MF26	Softline	0181 401 1234

MACFORMAT Classic Heavyweight morphing application that's more sophisticated than its cheaper rival *Morph,* and correspondingly harder to get into.

HyperStudio 3.0	£121	88%	MF36	TAG Developments	01474 357350

Practical and powerful tool aimed more at education than multimedia authors per se. More text styling tools are needed.

Multimedia CD-ROMs

The invention of the CD-ROM has created a whole multimedia publishing industry turning out educational, reference and leisure titles by the score. Here's our list of CD-ROMs that every home should have on its bookshelf. Possibly.

Name	Price	Rating	Reviewed	Contact	Telephone
Encarta 96	£50	83%	MF42	Microsoft	01345 002000

Microsoft's definitive multimedia encyclopedia is bang up-to-date, but the Mac implementation is flawed.

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Product News continued

and resolution enhancement of the EPL-N1200. The RRP is £2,800, but expect to pay nearer **£1,750**. Both machines have a **PostScript** option.

You can find out more from **Epson** on **01442 61144**

Classics on disk

MIDI file specialist **Words & Music** has released nine new disks of classical music in MIDI format. Tracks include the 1812 Overture, Dvorak's New World Symphony, Beethoven's 5th, Ride of the Valkyries and more. Each disk contains **over 600K** of data and sells for **£12.95**, but you can take advantage of various special offers if you buy more than one. You can order a free catalogue of the range by calling **Words & Music** on 01670 519589, by faxing 01670 511 827 or by e-mailing **sales@words.demon.co.uk**

Authoring offer

mFactory, publisher of ***mTropolis***, the professional-level multimedia authoring program, is offering it to ***Director* users** a special price of only **£495**.

mTropolis supports **QuickTime movies** and **PICs animations** created in *Director* and, mFactory says, complements Macromedia's product perfectly.

To find out more about mTropolis and the upgrade offer, call UK distributors **Mekon** on **0181 288 9994** or take a look at the Web site at **http://www.mekon.co.uk**

Maths made easy?

Education specialist **Iona Software** has announced ***Amazing Maths***, a program that teaches **mathematics** to **8-to-12-year-olds** via a series of arcade games featuring **Marvel superheroes**. Spiderman, Wolvering, She-Hulk and Iron Man won't just be making the world a safer place for law-abiding citizens, but "teaching and reinforcing mathematical learning skills" into the bargain.

To find out more, call **Iona Software** on **0181 296 9454**.

Ethernet card for PowerBook 1400

You'll soon be able to connect your **PowerBook 1400** to your company's **Ethernet network** without bulky external widgets, thanks to Farallon's soon-to-be-released **EtherMac PB 1400 Card**. The card fits into the 1400's video slot and needs only the standard bundled RJ-45 cable to link it to the network.

The card should be available in the first quarter of 1997, but the price has yet to be announced. Distribution in the UK will be handled by **Gomark**, and you can call **0171 731 7930** to find out more.

EZ data transfer

Some names just don't survive the transatlantic crossing, and 'EeZed' Flyer230 (**EZFlyer230**) is one of them. Nevertheless, it could be a useful gadget for those who need to carry lots of data around. It's an inexpensive and

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Name	Price	Rating	Reviewed	Contact	Telephone
Encyclopedia of Science	£40	89%	MF32	Dorling Kindersley	0171 753 3488
Misses out on cutting-edge whizz-bang multimedia, but provides an absorbing background to science in general.					
History of the World	£40	89%	MF38	Dorling Kindersley	0171 753 3488
More flashy and inspirational than in-depth and authoritative. Oozes quality, but built for browsing rather than research.					
Makers of the 20th Century	£45	89%	MF41	News Multimedia	01525 852 813
200 personalities of the 20th Century are examined and explained in a well-presented and often intriguing CD.					
MTV Unplugged	£25	88%	MF40	CIC	0181 846 9433
Multimedia database of *Unplugged* performances going back seven years and including interviews, video and set listings.					
The Mystery of Magritte	£39.99	90%	MF46	MIP	0171 881 8000
MACFORMAT Classic An engaging and radical look at one of the world's greatest all-rounders. It'll make you question your very existence.					
Picasso	£39.99	88%	MF46	Grolier Interactive	01865 264000
An educational and entertaining trawl through the life and works of one of the world's greatest artists.					
RedShift 2	£50	92%	MF32	Maris Multimedia	0171 488 1566
MACFORMAT Classic Restrained but magnificent exploration of the universe using sound astronomic principles, hailing originally from Russia rather than the gung-ho States. Utterly definitive.					
World Reference Atlas	£50	90%	MF37	Dorling Kindersley	0171 753 3488
MACFORMAT Classic Bestrides the Earth like a colossus, giving you the information you need, when you need it. The maps and graphics are mouth-watering.					

Multimedia for Kids

How do you keep the kids entertained on a wet Sunday afternoon in November? How do you justify the purchase of a new PowerMac to your spouse/bank manager/conscience? Multimedia CD-ROMs for kids can entertain, occupy and educate all at the same time. Here are the best we've seen.

Name	Price	Rating	Reviewed	Contact	Telephone
Adiboo	£27.99	95%	MF46	Sierra	0118 920 9111
MACFORMAT Classic A fantastic learning adventure, packed full of activities and fun across two CD-ROMs. This will keep your kids fascinated for hours.					
Adventures of Peter Rabbit	£30	88%	MF43	Mindscape	01444 246333
Seven-year-olds might find this a tad naïve, but the charming atmosphere and beautiful illustrations make it a real winner.					
Counterfeit Collaborator	£28	90%	MF35	Sierra	01734 303322
MACFORMAT Classic A genuinely intriguing mystery forms the heart of this Playtoon CD. French imagination and illustration translated into English makes a beguiling combination.					
Darby the Dragon	£20	89%	MF44	Brøderbund	01429 273029
A rare and challenging adventure game, which will educate and captivate your kids.					
Greatest Toyshop on Earth	£30	88%	MF32	Omnimedia	0181 974 6766
A brilliantly entertaining set of kids' toys in a comfortingly British environment. Something to keep coming back to.					
Logical Journey of the Zoombinis	£30	96%	MF41	Brøderbund	01429 273029
MACFORMAT Classic A well-designed course in mathematical logic for kids that's almost completely disguised as a superb-looking and fun game.					
The Lost Mind of Dr Brain	£28	92%	MF43	Sierra	01734 303322
MACFORMAT Classic Challenging, lots of fun and well suited to the intended age group, *Dr Brain* is addictive and has longevity. A great buy.					
The Mandarine Prince	£28	88%	MF37	Sierra	01734 303322
A firm favourite in his native France, cub reporter Spirou solves another mystery in this fine title.					
Maths Workshop	£30	90%	MF41	Brøderbund	01429 273029
MACFORMAT Classic Teaches maths in the broadest possible sense, with wonderful-looking activities and a good manual. Needs adult assistance, though.					
My First Amazing World Explorer	£30	89%	MF41	Dorling Kindersley	0171 753 3488
Interactive atlas that's pitched at just the right level for younger children, showing the world as a diverse and living thing.					
PB Bear's Birthday Party	£30	92%	MF35	Dorling Kindersley	0171 753 3488
MACFORMAT Classic Interactive storybook entertainment for three-year-olds which combines fun, learning and real photography in a quality package.					
The Secret of the Castle	£28	90%	MF35	Sierra	01734 303322
MACFORMAT Classic This Playtoon disc is produced to the same high standards as its sister titles, but in this case its value is more entertaining than educational.					

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Product News continued

portable removable drive which takes **230Mb 3.5-inch SyQuest** cartridges and is compatible with the 135Mb versions too.

The **EZFlyer230** costs **£240** and the cartridges are £25 each. You can find out more by calling **SyQuest** on **0800 526559** or you can visit the company's Web site at **http://www.syquest.com**. And watch for a group test of removable storage options in MACFORMAT next issue!

Motorola joins in

Apple's decision to licence its Mac operating system to other computer makers didn't initially create a stampede. But manufacturers have been steadily climbing on board and the latest recruit, **Motorola**, has appointed distributor Principal to handle its **StarMax range** in the UK. Which means that if you're interested in the Motorola StarMax range of Mac-compatibles you've now got a number you can call to find out more – **01628 763200**.

Mac Diary

ArtiMEDIA

Where: Batley, West Yorkshire
When: January to March
What: Short courses, seminars, introductions and meetings for multimedia designers, writers, Internet professionals and Internet beginners
Price: From nothing to £60, with reductions for ArtiMEDIA members and other concessions
Contact: 01924 442598

User Groups

User groups are more or less informal clubs of people with a common interest – in this case, Macs. If you don't have any Mac-owning friends, they're a great source of information, advice and hands-on help. Some groups simply meet every now and again; others are more structured and may even publish regular newsletters.

UK User Group Council list

The UK User Group Council maintains a list of the Mac user groups which have registered with it. If you wish to contact the council, call John McKnight on 0181 314 5555.

Local groups

- **Aston University Mac UG**: Birmingham area. Contact Ray Tier on 0121 359 3611
- **Berkshire Mac UG**: contact Ian Burn on 01734 813669
- **Blackburn Mac UG**: contact Roger Moreton on 01254 670043
- **Bristol (BAUD)**: contact Malcolm Ingsley on 01454 616846

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Name	Price	Rating	Reviewed	Contact	Telephone
Uncle Archibald	£28	90%	MF35	Sierra	01734 303322

MACFORMAT Classic Another excellent Playtoon about imaginary monsters that come to life. Slapstick chaos is the result. And you can use it to learn French.

The Way Things Work 2.0	£40	88%	MF45	Dorling Kindersley	0171 753 3488

Full of clear explanations and plenty of fun. Kids will find this easy to use, and can learn at their own pace.

Games

As a games machine, the Macintosh now rivals both the PC and the plethora of whizz-bang plastic games consoles flooding the teen market. The best games tend to be those that involve brains as well as reflexes, and those which absorb you thoroughly into their game-world. Here's our choice of the best recent titles.

Name	Price	Rating	Reviewed	Contact	Telephone
A-10 Cuba!	£45	90%	MF46	Softline	0181 401 1234

MACFORMAT Classic *A-10 Cuba!* has benefitted from a general tidy up, and some interesting missions. It needs a fast Mac for best results, though.

Actua Soccer	£39.99	90%	MF46	Gremlin	0114 275 3423

MACFORMAT Classic A beautiful game about the beautiful game, and a superb debut performance for football on the Mac. Roll on the competition.

Apache Longbow	£45	92%	MF41	Digital Integration	01276 684959

MACFORMAT Classic 3D Gouraud-shaded flight sim with real class and some fairly hefty hardware requirements. Once you've mastered the controls, the missions are a joy.

Asterix: Caesar's Challenge	£40	92%	MF36	Infogrames	0171 738 8199

MACFORMAT Classic Great family fun with superb animations and humour, and oozing with novelty. Just don't ask awkward questions about long-term appeal.

Day of the Tentacle	£40	94%	MF33	Virgin Int. Ent.	0171 368 2266

MACFORMAT Classic A game it's impossible to fault. You'll love it. You'll hate it. You'll want to wring its neck. It's funny, it's involving and the cartoons are quite superb.

Doom 2: Hell on Earth	£45	90%	MF31	Virgin Int. Ent.	0171 368 2266

MACFORMAT Classic The blood-spattered violence *Doom* is famous for hides some quite involving puzzle-solving. One of the best 3D arcade games around.

F/A-18 Hornet 2	£69	93%	MF36	Softline	0181 401 1234

MACFORMAT Classic Realistic, absorbing and fun – an instant classic. Imaginative and interesting missions that progress into desperate adrenaline-laced strikes.

IndyCar Racing II	£17	94%	MF42	Sierra	01734 303322

MACFORMAT Classic Spectacular simulation at its finest, and at a real bargain price. Stunning graphics and attention to detail, combined with responsive cars and ruthless opponents.

Marathon 2	£65	95%	MF35	Softline	0181 401 1234

MACFORMAT Classic A huge game task, addictive gameplay and excellent graphics and sound. What more could you ask for? Well... maybe a lower price.

MechWarrior 2	£50	89%	MF43	Activision	0181 742 9400

Its complexity is initially confusing and the controls take some getting used to, but *MechWarrior 2* is too addictive to let that worry you for long.

Pro Pinball: The Web	£35	90%	MF44	Empire	0181 343 7337

MACFORMAT Classic The finest pinball simulator ever (full stop).

WarCraft II	£45	93%	MF45	Zablac Entertainment	01626 332233

MACFORMAT Classic A delight to look at, with excellent effects. In multiplayer mode, as near to perfect as a game of this type has come.

Worms	£30	89%	MF45	Team 17	01924 271637

Simple concept with almost endless tactical possibilities. Great multi-player game but let down by a clumsy interface.

X-Wing	£45	90%	MF36	Virgin Int. Ent.	0171 368 2255

MACFORMAT Classic The classic *Star Wars* flight sim finally makes it onto the Mac, together with a facelift and 102 missions. It's good, but needs serious hardware.

How to contact MACFORMAT

Editorial enquiries
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Tel: 01225 442244, fax: 01225 446019
E-mail: macformat@futurenet.co.uk
Web site: MACFORMAT is on-line as part of FutureNet. Accessing it is free – point your World Wide Web browser at:
http://www.futurenet.co.uk/

Sending us a letter?
Send your letters to the address above – the shorter they are, the better their chances of being printed. E-mail letters are welcome too – please put "Apple Talk" in the subject line. If you'd like a letter included in the Readers' Corner on our Cover CD-ROM, make sure it contains no defamation or obscenity, then send it in as a *SimpleText* document (so anyone can read it!) on a disk marked "MACFORMAT Readers' Corner". Make sure you include your name and address, and note that we can't return your disk.

■ If you send us a fax, please write "MACFORMAT" prominently at the top so that our receptionists know which of Future Publishing's 50 magazines to forward it to.

■ The legal stuff: all correspondence sent to our editorial address will be considered for publication unless you specifically state otherwise, and we reserve the right to edit letters for reasons of space, clarity or legality. By writing to us, you agree to assign all copyright in your letter to Future Publishing Ltd and its licensed agents worldwide, so we can translate it for our Taiwanese edition next year... if it's good enough. And don't even *think* of asking for it back afterwards.

Problems or questions?

■ Sorry, but we cannot give personal help with technical problems or buying advice, whether by phone, fax or e-mail. If you have an urgent problem with a new Mac, try the Apple Assistance Centre on 01753 615999.

■ We try to make ourselves available to answer Cover Disc related and general reader calls on Wednesday afternoons from 2pm to 6pm, so please ring then if you have to. We cannot answer technical queries over the phone – sorry! We hope you'll understand that because we receive so much correspondence we can't promise to reply to faxes, e-mail or mail personally, even if you include an SAE. However, rest assured that we do read all correspondence we receive.

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Winners

Announcing the lucky winners of recent competitions...

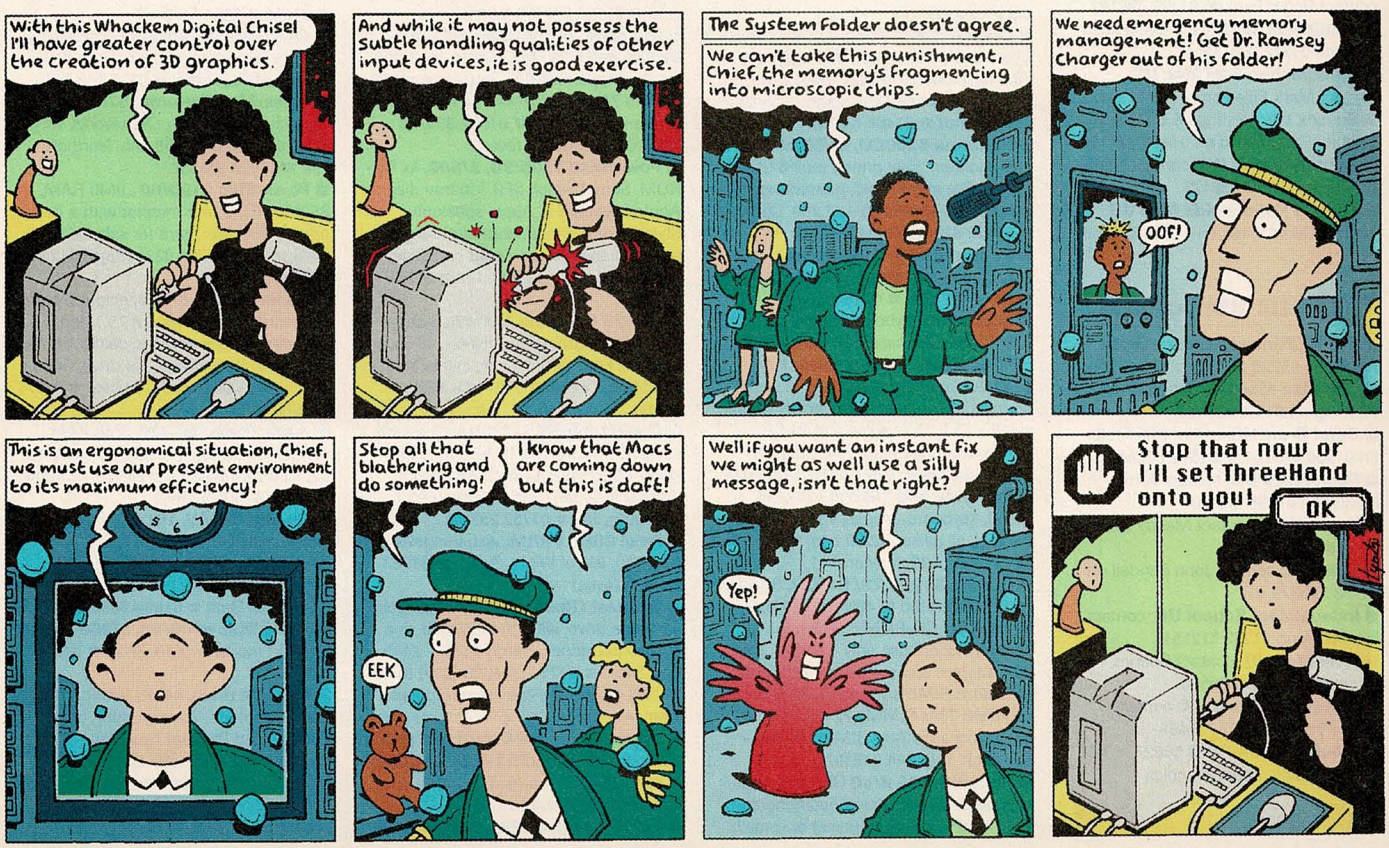
Back in MACFORMAT 37, we gave you to chance to air your views in our Readers Survey – and in doing so, the opportunity to win a Macintosh Performa 5300, a fully-featured multimedia computer worth £2,375.

The Performa 5300 comes with a whole bundle of software, and the lucky winner is David O'Brien of Perth, Scotland. Well done to you!

In MACFORMAT 44, we asked for your views in the 1996 MACFORMAT Reader Awards. In replying, you also had the chance of winning a MACcelerate 180-MHz upgrade card worth £586, courtesy of Gordon Harwood Computers. The lucky winner is Cherry Klein of London. The 10 runners-up who win a 12-month subscription to MACFORMAT are: Warren Whyte, London; Gordon Low, Angus; Robert Blatchford, York; David Simons, Derby; A U Westerhout, Holland; John Noble, Maidstone; Ian Wilks, Huddersfield; John Stone, Bristol; Steven Smith, Bristol; Octavio Dos Santos Neto, London. Congratulations to all! **MF**

The Classic System Crew

by Bob Lynch


With this Whackem Digital Chisel I'll have greater control over the creation of 3D graphics.
And while it may not possess the subtle handling qualities of other input devices, it is good exercise.
The System Folder doesn't agree.
We can't take this punishment, Chief, the memory's fragmenting into microscopic chips.
We need emergency memory management! Get Dr. Ramsey Charger out of his folder!
OOF!
This is an ergonomical situation, Chief, we must use our present environment to its maximum efficiency!
Stop all that blathering and do something!
I know that Macs are coming down but this is daft!
EEK
Well if you want an instant fix we might as well use a silly message, isn't that right?
Yep!
Stop that now or I'll set ThreeHand onto you!
OK

User Groups continued

- **Cambridge Apple UG**: contact Ian Archibald on 01223 311157
- **Cancer Research/RMH UG**: contact Raymond Henry on 0181 643 8901
- **Cumbria Mac user group.** Monthly meetings, newsletter, training (reasonable rates). Call Linda Linsell, 01229 828422 or send SAE c/o 10 Athol Street, Barrow-in-Furness, Cumbria LA14 2QT.
- **Gateway UG**: Norfolk area. Contact Verne Anderson on 01638 513000
- **Glasgow Mac UG**: contact Stephen Broadfoot on 0141 339 6646
- **Herts/Beds Apple UG**: contact Norah Arnold on 01582 573918
- **Liverpool Apple UG**: contact Irene Flaxman on 0151 928 4142 or 0151 949 0307
- **London Mac UG**: contact John McKnight on 0181 314 5555
- **Mac Assist**: Cardiff and district. Contact Nigel Arrighi on 01222 224682
- **Midapple**: West Midlands. Contact William Watson on 01384 277921
- **Midland Mac UG**: Worcestershire. Contact Ivan Knezovich on 01299 402631
- **North West Apple CC**: contact George Evans on 01270 583714
- **Norwich Mac UG.** Dave Gudgeon on 01508 492938
- **Nottingham Mac UG**: contact David Nicholson-Cole on 0115 945 5077 or 0115 945 5444
- **Poole Mac UG**: contact Bob Lister on 01202 684441
- **S E Essex Mac UG**: contact Michael Foy on 01702 468062
- **Southampton Mac UG**: contact Clive Marklow on 01703 293453
- **Southern Mac UG**: Salisbury area. contact Roger Ford on 01722 780102
- **Southwest Mac UG**: contact John Elver on 01272 693119
- **Staffordshire Poly Mac UG**: contact Mark Stiles on 01785 52331
- **Sussex UG**: Hastings & E Sussex. Contact Garry Nevin on 01424 714110
- **West Midlands UG**: contact Danny Torbica on 01902 336172
- **Yorks & Humberside Mac UG**: contact David Vardy on 01423 358853

Thematic user groups

- **BAPC (Printers)**: contact Derek House on 01228 513621
- **Christian Mac UG**: contact Paul Wareing on 01789 490153
- **Corel Draw UG**: contact Jill Foster on 01509 415101 or 01509 620442
- **Developers UG**: contact John French on 01895 672654
- **HebreWare**: contact Mendy Scharf on 0181 802 6143
- **Helix UG**: contact John Sandell on 01763 273379
- **Independent School UG**: contact Ian Carter on 01252 512151
- **LAW Mac UG**: contact Charles Christian on 01379 88518
- **Lisa Users Group UK**: contact Sheila Bell on 01367 710453
- **MacBaud**: call 01685 58027
- **MacLaw**: contact Nicholas

Free reader ads

Roll up, roll up! Today, in a never-to-be-repeated offer (nearly), it's the Mac sale of the century! Dive in...

Hardware for sale

- **Mac IICX 8/160,** mouse, keyboard, cables, Sony 20-inch monitor, radius card, Ethernet card – £750. Elaine ☎ 0121 426 3210 (eves)
- **LCII 8/40,** 12-inch monitor, StyleWriter II – £400 plus free CD-ROM drive. New Malden ☎ 0181 942 2443
- **660AV 12/230CD Centris,** used only for home use and in excellent condition, boxed with manuals, keyboard, mouse (working demo) – £650 ono. James ☎ 0114 255 1983 (after 6pm)
- **Mac LC 6/40 CPU,** keyboard, mouse, System 7, manuals, vgc – £300. Apple 12-inch RGB colour monitor, excellent condition – £100. John ☎ 01793 783555
- **Two 4Mb 72 pin SIMMs –** £15 each. Four 256K 30 pin SIMMs – £5 each. Apple CD300i internal double speed drive – £45. Mark ☎ 01225 767941 (eves)
- **IIvx,** 14-inch monitor, keyboard, mouse, graphics software – £420 ovno for quick sale. Jeremy ☎ 0181 348 7148 or e-mail: jeremy.hopes@dial.pipex.com
- **Mac IIsi 17/40,** 14-inch Performa monitor, brand new, 8-speed D2 CD-ROM, brand new, mouse, extended keyboard, ClarisWorks 4.0, System 7.5 – £950 ono. Bletchley ☎ 01908 644179
- **Quadra 840AV 24/1Gb,** GeoPort faxmodem, Apple 8/24 display card, CD-ROM software – £1,100 ono. Mike ☎ 0171 636 7338 or e-mail: mlawrence@easynet.co.uk
- **Quadra 610 12/160** CD 300e, Trinitron monitor – 14-inch, SupraExpress 28.8 fax/modem, VRAM, mouse, keyboard, lots of software, books, CDs etc – £900. Stuart ☎ 01484 845677
- **Performa 6200CD,** 64/800Mb, 15-inch monitor, 2500 printer plus 8 CD-ROMs, five months old, guaranteed, fast mover (and speakers) – £1,700. Cumbria ☎ 01229 828422 (eves)
- **Performa 475 4/160,** monitor, keyboard and mouse including *ClarisWorks* v2.0 – £400 ono. ☎ 01454250376
- **LCII 4/80,** keyboard & mouse – £225. 330Mb external hard disk drive – £140. HP DeskWriter 320 plus colour kit – £140. All excellent condition. 60 used floppies all branded high density double sided – £15. 25 floppies and 65 CD-ROMs from Mac magazines 1995-6 – £35. Manchester, Clive ☎ 0161 476 1400
- **Performa 630 12/500** CD DOS (new), keyboard, mouse, vgc and fully original, all disks – £920 ono. ☎ 0181 952 0184 (after 4.30pm Mon-Fri)
- **Quadra 840AV 28/1.2/CD,** System 7.5.3, accelerated to 48MHz, CPU only and mouse. CD-ROM is 300i+ (tray loading). Home use only – £1,200. GeoPort adaptor and software – £50. Two 4Mb 60ns SIMMs 72 pin – £25 each, two 8MB 70ns SIMMs 72 pin – £40 each, 16 x 4Mb 70ns SIMMs 72 pin – £20 each. ☎ 01444 245392
- **Performa 400 6/80** CPU only, plus keyboard, mouse, all in good condition. Tony ☎ 01902 716610 (eves) or e-mail: a.cook@wlv.ac.uk
- **Quadra 650 12/500/CD**, Apple extended keyboard, NEC 17-inch monitor, System 7.5, *ClarisWorks 3.0* – £1,100 or £650 for Mac only. Personal Case-Writer 320 PostScript Level 2 printer. Very light home use – £400. D2 external 1Gb hard drive – £150. ☎ 01625 432708
- **Apple PowerBook 190 4/500** with StyleWriter 1200, *ClarisWorks* and other software, manuals and boxes with Apple Care Agreement until October 1997 – £850 ono. George ☎ 01252 514535 (eves) or 01252 350582 (days)
- **Macintosh 14-inch monitor**. Excellent condition, hardly used, complete with cables – £180. ☎ 01903 762846
- **Classic II 4/40,** keyboard, mouse, StyleWriter printer, boxed with manuals and disks. Disk full of software – *ClarisWorks, RAM Doubler* – £300. ☎ 01205 368930
- **PowerBook Duo230, 16/120,** with Book II – £875. Also Duo 8Mb RAM – £75 and PowerBook 100 RAM 6Mb – £60. Slough, ☎ 01753 643309
- **IIci 20/250,** 20-inch Sony Trinitron monitor, 2x CD-ROM, keyboard, mouse – £850. ☎ 01689 858336
- **Performa 400 8/40,** Sony Trinitron 14-inch monitor, StyleWriter II printer, mouse, keyboard, *ClarisWorks 4.* Lots more software, light home use only – £550 ono. ☎ 01444 892162
- **Mac LC 6/40** with colour monitor, keyboard, mouse – £190 plus carriage ono. ☎ 01252 517430 (eves)
- **Performa 450 12/250,** FPU, max VRAM, Performa Plus display, keyboard, mouse, Apple CD600E (under warranty), System 7.5.1, *ClarisWorks, At Ease,* boxed, all manuals – £700. ☎ 01902 305766 (day) 01902 352310 (eves)
- **PowerMac 7200/90, 8/500,** 4x CD-ROM, Sony 15-inch SFII Trinitron display, Apple keyboard II, Apple speakers, StyleWriter II printer, abundant range of software and games – mint condition, superb bargain – £1,700. Tim ☎ 01689 896893
- **LC 475 Performa 12/160,** System 7.5.1, Macintosh colour display, 13-inch monitor, keyboard, mouse, extras, mint condition – £500. ☎ 0181 309 1356 (eves)
- **Centris 660AV 12/230** with double speed CD-ROM and 16 bit sound and video, plus Apple 14-inch Trinitron display, keyboard and mouse – £800. Plymouth, Joe ☎ 01752 253327
- **Free! 256K VRAM,** also ImageWriter 43 – £10. Isle of Wight, Adam ☎ 01983 524630 (eves)
- **SyQuest (Rumi) 270Mb** removable cartridge drive, with three 270Mb, one 105Mb cartridges. Hardly used – £440 ono. Steve ☎ 0171 238 4006 (day) 01732 740521 (eves) or e-mail steve@plater.demon.co.uk
- **Dayna Ethernet PC card** with phone cable, for PowerBooks T & 2 – £110 ono. ☎ 0976 664042 or e-mail: CSD@mured.demon.co.uk
- **16Mb 72-pin SIMM,** bargain at £50 ono. Selling due to upgrade. ☎ 0115 952 3068
- **IIcx 8/80,** 20-inch mono monitor, HP DeskWriter, Logitech Scanman, mouse, keyboard – £600. Will sell Logitech Scanman separately or will swap for something. ☎ 01633 601613
- **PowerBook 540c 12/320Mb,** flatbed scanner and Stylus colour printer, PCMCIA, 28,800 internal modem and QuickCam b/w also 2x CD-ROM. All excellent condition – £1,900. Dennis ☎ 01604 494664
- **A3 Wacom graphic tablet,** can be used for one-to-one working or large documents, boxed, as new – £400. ☎ 01491 839335
- **StyleWriter II inkjet printer –** £70 ono. Spare cartridges – £10 each. Nottingham, Robert ☎ 0115 972 8813
- **Tektronix Phaser 140 PostScript** A4 colour printer, with Ethernet connectivity, with spare ink cartridges and coated paper – £675 ono. Ricoh 650Mb re-writeable optical disk, 5.25-inch, with spare disk, inc. cables – £275. Graham ☎ 01865 326222
- **Surplus RAM due to upgrade,** two 2Mb 30 pin SIMMs and 256K VRAM module – £30 plus postage. Yorks, David ☎ 01535 646596
- **Performa 6320 12/1.2Gb HD,** 8x CD, 15-inch monitor, TV/video-in, Apple fax/modem, loads of software, StyleWriter 1200. All under full Apple on-site warranty – £1,400 ono. Uxbridge, Philip ☎ 01895 270221 (fax/tel)
- **Apple presentation kit –** connects Mac to TV – never used, boxed, complete – £140. Bristol, ☎ 0117 942 4250
- **PowerMac Performa 5200/8,** CD, 15-inch monitor with *ClarisWorks,* very good condition – £950 ono. Northants, Lee ☎ 01933 678380
- **PowerMac 6100/60 ,** 8Mb RAM, 350Mb HD, colour monitor with a colour printer, with lots more for sale – £1,200. George ☎ 0171 224 0234 (days) 0121 275 7476 (night)
- **Performa 475 8/250,** colour monitor, keyboard, mouse, System 7.5.1 and software. Colour scanner, colour printer, CD-ROM, fax/modem, Zip drive, three cartridges – all boxed – £1,300. ☎ 01274 511989
- **Apple Performa 600**, 8Mb RAM, 80Mb HD, CD300, personal LaserWriter LS, all handbooks, CDs galore – £1,000 ono – ☎ 01803 525473
- **Quadra 660AV, 16/230,** keyboard and mouse, GV Teleport Gold II 14.4 modem, CD-ROM drive, System 7.5.2 , fully Internet ready, boxed – £600. Northants, Dom ☎ 01604 505803
- **PowerMac 6100/60, 8/250 –** £640, Geoport modem – £40. Brian ☎ 01270 628483
- **SyQuest drive,** 44Mb, with cartridge and SCSI cable. Good working order – £50. Hewlett Packard DeskWriter 320 inkjet printer with colour kit and sheet feeder. Very little used, boxed with manuals and software – £125. PowerPrint printer driver v3.0.2 (latest), PowerPC

accelerated, new, boxed, unregistered – £70. Bath ☎ 01225 316726

■ **CLC10 Canon high quality colour printer,** colour photocopier and colour scanner A4, complete with IPU ink and paper. Excellent condition – £800 ono. Leeds, Glenn ☎ 0113 239 0620

■ **Performa 6200 75MHz,** 14-inch monitor, keyboard, mouse, one year old, plus CDs – £1,100 ono. ☎ 01360 313 393

■ **PowerMac 6100/84, 24/250.** CD, 14-inch Trinitron, keyboard, mouse, HP560C printer, L2 cache, joystick, GeoPort modem – £1,800. Contact Andy ☎ 0973 735449 (days) 0161 766 3956 (eves).

■ **PowerBook 100 2/40,** complete with floppy drive, System 7.1, boxed manuals and receipt, 20 months old. Needs a new battery, cost £39.99 – hence will accept £110. Bargain. ☎ 0115 979 2218.

■ **LC475 8/160,** 14-inch Apple Trinitron monitor with *FreeHand, Quark, Photoshop* and *Illustrator.* Not used for work – low mileage! Upgradeable. Bargain £800 ono. ☎ 01344 291236 after 4pm.

■ **Performa 630, 8/500 CD,** System 7.5.3 OS, 15-inch colour monitor, extended keyboard, *ClarisWorks* installed, DOS compatible, *Color It!, Flashback,* tons of utilities, applications and games – £900 Aaron ☎ 0114 267 1606

Software for sale

■ **Adobe *FrameMaker* + SGML.** Mac-CD; Brand new; boxed,unused. Costs over £900 new – accept £750. London, Chris. ☎ 0973 894626 or e-mail chris.hamilton@mcl.co.uk

■ **Metrowerks *Codewarrior Gold 7* –** offers? Isle of Wight, Adam ☎ 01983 524638 (eves)

■ **Adobe *Premiere 4.0,*** unopened, unregistered deluxe double CD-ROM, disks, all manuals, brand new – £250 ono. Part of bundle, but already owned it. ☎ 01252 78632

■ **Various emulators for the Apple Mac –** £5 per full disk, lots available. ☎ 0181 523 8058 or 0973 301882

■ ***Theme Park, Lemmings,*** *ClarisWorks 3.0, KeyPro Fonts, 7th Guest, Kings Quest VI,* MACFORMAT CDs – any offers? ☎ 01707 321558 (eves)

■ ***Photoshop 2.5.1,*** unregistered, boxed, manuals – £75 ono. Paul ☎ 01604 710922 (days) 01604 32949 (eves)

■ **Apple Remote Access server**, unregistered, boxed with original disk and manuals – £130 ono. ☎ 0976 664042 or e-mail: CSD@mured.demon.co.uk

■ **Official CodeWarrior** Discover Programming for Macintosh starter kit. CD includes 68K compiler, on-line books and help. Unregistered, £30. ☎ 0181 940 5468

■ **Adobe *Premiere 4.0,*** unused floppy disks and double deluxe CD-ROMs – £100. Craig ☎ 01279 429647 (after 6pm) or e-mail: craig@dotmad.co.uk

■ ***Strata Studio Pro Blitz v1.75***, brand new with manuals, registration cards, etc, still in original shrink wrap – £300. Mike ☎ 0116 254 1027 (after 6pm)

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■ **Adobe *PhotoShop LE,*** unopened, unregistered – £50. *FileMaker 2.1,* unopened, unregistered – £50. ☎ 0141 649 2744

■ **PowerPrint software** and serial to parallel cable, use any printer with your Mac. Boxed – £40. Bob Pond ☎ 01241 854105

■ ***Marathon* CD –** £15-20, *Lucas Arts Archives* (including *Day of the Tentacle* and *Rebel Assault)* – bargain at £30, or both for £40. ☎ 01273 503330 (after 6pm)

■ **HyperCard plug-ins.** *CompileIt* and *Windowscript* – £50 each or £80 for both. Macintosh programmers Toolbox assistant CD – £20. Mark ☎ 0181 224 6975 (eves).

■ ***Lion King Story Book,*** *Aladdin Activity Centre, Rednex, The Daedalus Encounter, Making Music, Rock Rap 'n' Roll, The Way Things Work* – £15 each. ☎ 01865 511954

■ ***Director 5*** unopened – unwanted prize. Offers – Tim ☎ 01437 781779 (eve)

Wanted

■ **Apple Portable StyleWriter User's Guide**, also printer cable and charger – can anyone help? Please call ☎ 0181 548 0403

■ **I need all codes** for *Daedelus Encounter.* Please send the codes to me: Stephen Lucas, U2. Chopina 6, 43-400 Cieszyn, Poland

■ **Symphonic composer needs modest finance** to complete major Mac piece. Donations to: Big George, Vicarage Walk, Stony Stratford, MK11 1BS or a/c: 0809131, sort code: 30-15-53

■ **PowerBook,** black and white, willing to pay up to £380, with *ClarisWorks* if possible. ☎ 01263 711123 (after 5pm Tues, Thurs, Sat)

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■ **Microsoft UG**: contact 'Enquiries' on 01252 834995

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■ **Special Needs UG (SNUG)**: contact Geoff Hughes on 01744 24608

■ **The British IIGS UG**: contact Peter Stark on 01223 838231

■ **Young Mac**: call 01795 535472

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■ **Artists archive and news service:** contact The Research Station on 0181 778 6547 (24 hours) 38.4bps plus Web site at **http://www.metamute.co.uk/**

■ **MacLin, E-lans MUG**: meetings every other Tuesday, bimonthly newspaper, for info call +46 (0) 141 220330 or e-mail omar@motala.mail.telia.com

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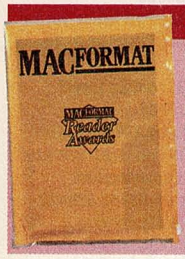

Issue 46 – January 1997

CD-ROM: *Media Paint, Actua Soccer, Marathon Infinity* and *ClickWorks* demos. Full *Internet Explorer 3.0.*
Disk: *Pacman; DiskList; Malph.*
Inside: Best products of 1996; The Mac in '97; PC-compatibility solutions; *Fractal Detailer;* Software RAID.

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Issue 45 – Christmas 1996

Free MacGamer supplement!
CD-ROM: 120Mb of video: clips, demos and utilities; *WarCraft II, Worms, Future Splash* demos.
Disk: *QuickEditor, Aaron, Bert.*
Inside: Pros' video secrets; graphics cards; *3D World 2;* PowerBook 1400.

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Issue 44 – December 1996

Double-CD special!
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Issue 43 – November 1996

CD-ROM: *Marathon Infinity, Abuse, Director, Authorware, Muppets, Origins of Mankind* demos; artificial life suite.
Disk: *Snood* game, *MacTypingTutor.*
Inside: Artificial life; word processing vs DTP; storage media group test; *RAM Doubler 2, Overdrive* reviewed.

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Issue 42 – October 1996

CD-ROM: *Bryce 2; Descent 2; QuickTime 2.5;* science demos.
Disk: *Bricks* building sim; *Super Carz;.StartUpScreenManager.*
Inside: Definitive Mac and clone round-up; e-mail packages; *Infini-D 3.5; IndyCar Racing 2;* science CDs.

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Issue 41 – September 1996

CD-ROM: *Photoshop 3.0.5, Director 5.0, Hexen* demos; *Goo* movies.
Disk: *DeBabelizer Lite* complete; eight utilities.
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Issue 40 – August 1996

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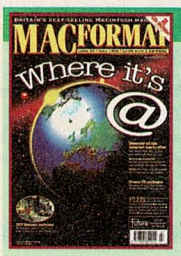

Issue 39 – July 1996

CD-ROMs: Sorry, no longer available.
Disk: *Skittles; Digital Address Book; Shards 1.3; Geogenius World; Rainbow Windows; Calendar Menu 3.01.*
Inside: Discover the Internet; *Extreme 3D, Ray Dream Studio, PhotoDeluxe; Spycraft, Flight Unlimited* reviewed; Fax-modems round-up and reviews.

Order codes:
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Issue 38 – June 1996

CD-ROM: *ClarisWorks 4.0* updater; *Live Picture; X-Wing; Ice & Fire.*
Disk: Print utilities; freeware fonts; *Flippers; Biorhythms; Munchies.*
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Issue 36 – April 1996

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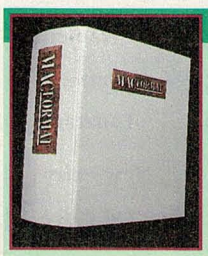

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MACFORMAT

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Printed in the UK by TPL (UK) Ltd

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45,425

OS or OTT? The Tiny Zone!

Hello and welcome again to Tiny Zone, the section of MACFORMAT that's about as low as tech can get. So, NeXT's OS looks likely to be the next Mac OS. Exciting news! Except, isn't NextStep based on Unix? Eek. Like most publishing companies, Future is completely Mac-based (even the PC magazines), except for our Pre-Press department, which has OPI servers and imagesetters and this database thingie that reunites pages with high-res images or some such stuff... All Unix, and always having problems. A simple memory upgrade was a nightmare, for example, because two identical, *Spark*ling-new memory cards refused to work together. Then the system refused to switch on again after the Christmas break, because the backup battery had gone flat. So they ran an extension cord to the battery slot, another to the battery recharger, and a third to the coffee machine (priorities, after all). Only then there was nowhere to plug in the imagesetters... Um. Come to think of it, maybe the problem's not actually Unix after all...

Next Issue

Think you know your Mac? Try this quick quiz...

1. The next issue of MACFORMAT will feature:

- ☐ (a) An entertaining quiz to test your Mac EQ (Expertise Quotient)
- ☐ (b) A group test of removable storage media, including the latest Nomai 540 MCD drive
- ☐ (c) More expert advice on how to get the most from QuickTime
- ☐ (d) A step-by-step guide to automating your Mac using AppleScript

2. Reviews in the next issue of MACFORMAT will include:

- ☐ (a) The powerful multimedia creation package that makes it easy to "re-purpose" your DTP pages for the Internet or CD-ROM
- ☐ (b) A scorewriting package that sings as sweetly as a nightingale (it says here)
- ☐ (c) The latest games and multimedia, including a traditional RPG, a World War 2 strategy game, and an Ancient Roman city sim
- ☐ (d) Some really gorgeous graphics program, or possibly a spangly new 3D package

3. The next issue of MACFORMAT, issue 48, goes on sale:

- ☐ (a) At newsagents around the country and, indeed, the world
- ☐ (b) Four weeks after this issue went on sale (give or take a day or two)
- ☐ (c) Thursday 13 February
- ☐ (d) Complete with a cover-mounted CD-ROM jam-packed with software (or a high-density floppy disk if you prefer)

4. You can obtain your very own copy by:

- ☐ (a) Forming an orderly queue
- ☐ (b) Fighting your way through the crowds of Mac fanatics at your newsagent's
- ☐ (c) Asking your friendly local newsagent in advance to reserve you your very own copy
- ☐ (d) Turning to page 115 for details of our current subscription offers and subscribing, so you get every issue delivered to your door

Answer: All of the above! And much more besides...

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Tired of swapping over CD-ROMs? Win a Formac ProChange 48, an eight-speed CD drive worth £470 that can hold four discs at a time and swap them for you!

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The ProChange 48 sells for about £470 – terrific value when you think that an ordinary eight-speed drive could cost you as much. Now we have *two* ProChange 48 drives to be won, courtesy of Formac!

Established in the UK since 1990, Formac manufactures the very latest technology within the graphic card, monitor and data storage markets, supplying quality, innovative products from Blankenfelde-Berlin. While Formac realises that quality is of the utmost importance, it also realises that the Mac market is very price sensitive and the company is always reacting to give its customers the most complete package.

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The closing date is Friday 28 February 1997.

The questions

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(a) Four
(b) Eight
(c) 48

2. What speed of mechanism is the Formac ProChange 48 CD drive based on?
(a) Four-speed
(b) Eight-speed
(c) 48-speed

3. Which of the following is *not* true of the ProChange 48?
(a) With its audio software you can compile a play list of tracks on different CDs
(b) It swaps CDs automatically to access the one you select
(c) It can juggle balls, scimitars and flaming torches as well as CDs, *and* ride a unicycle

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1. You must send us your entry by midnight Friday 28 February 1997.
2. Employees of Formac, Future Publishing Ltd and associated companies, or their agents, and their families, are not eligible to enter.
3. Multiple entries are not allowed.
4. The editor's decision is final, no correspondence will be entered into and there are no cash alternatives. No purchase necessary. **MF**

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To help us improve the magazine, please answer the questions below. You will be entered into the competition even if you choose not to answer them.

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February 1997

Dear Subscriber,

Welcome to another issue of MACFORMAT, Britain's best-selling Macintosh magazine. The Mac has always been renowned as a graphics machine, and recently there's been an explosion of new and updated graphics software. Just a few months ago, *CorelDraw* arrived on the Mac with a splash, and now we're seeing upgrades to well-established programs appearing thick and fast. This issue we test *Photoshop 4* and *FreeHand 7*, and take the opportunity to survey the field at the same time, giving you an overview of the state of the art in image editing, illustration and 3D software. What about getting graphics into your Mac in the first place? We put graphics tablets and other input devices through their paces, as well as testing two new scanners from Agfa. And as for output, we evaluate Apple's latest LaserWriter and review a range of Web page creation software.

What's more, I'm thrilled to be able to say we've managed to put together an *extra*, bonus Cover CD this issue, jam-packed with no fewer than 21 top graphics demos *plus* a complete program, *Macromedia xRes 2.0 SE*. It's not time-limited or save-disabled, but a fully-working "special edition" version of Macromedia's high-resolution image editing, compositing and painting package. You can use it to create your own high-res art and manipulate images at remarkable speed in relatively modest amounts of RAM (though like all high-res graphics programs, it'll serve you better the more RAM you can give it). Whether you already use another image-editing package or not, give it a try. It's yours, with our compliments. And if you decide you like the *xRes* approach, don't miss our special upgrade offers inside – by special arrangement with Macromedia, you can upgrade to the brand new *xRes 3.0* or the complete *FreeHand Graphics Studio 7* bundle at very special rates.

Of course, there's lots more on the Cover CD and in this issue as well. For a start, we have solutions to the ten most common Mac problems. How did we know? We asked Apple's own Assistance Centre what were the most frequent questions they had to deal with. (Your problem not covered? As ever, if you have a Mac query, send it in to our experts and we'll do our best to answer in the best real-life problem solving pages in any Mac magazine.) And as usual, we have authoritative reviews of the latest games and multimedia titles, utilities (another RAM-boosting program this time round), new hardware including Macs from Apple and Umax, and low-cost shareware from the Internet. Whatever your Mac interest, there's something for you!

Something for everyone?

MACFORMAT aims to cover the whole range of Macintosh uses, but you might have noticed a vast number of different titles listed on the mailing wrapper of your copy of the magazine, covering an even broader range of interests. This magazine is one of over 50 titles from Future Publishing, and one or more of the others might also be of interest to you.

Future Publishing is Britain's fifth-largest magazine publisher (measured by copy sales revenue). It focuses on special-interest consumer magazines, and dominates both the computing and craft magazine markets, with a significant slice of the music sector as well. If you're interested in needlecraft, cake decoration or woodworking, there's a market-leading Future magazine for you *(Needlecraft, Cross Stitcher, Cake Decoration Monthly* or *Good Woodworking*, plus other stitching titles). If you make music or like listening to it, you might already be reading a Future magazine, whether it's *Classic CD*, the music technology magazine *Future Music* or a more specialised title such as *Total Guitar, Keyboard Review, The Mix* or *Hip Hop Connection*. Future produces magazines for other fields as well – sports titles including *Total Football, Mountain Biking UK* and *Cycling Plus*, and a range of "entertainment" titles: science fiction magazine *SFX*, role playing game enthusiasts' mag *Arcane*, gadgets and gizmos monthly *T3 (Tomorrow's Technology Today)* and the forthcoming *Total Film* (about which there are more details in MACFORMAT this issue).

On the computing side, Future publishes a portfolio of PC titles, from business magazine *PC Plus* to the world's best-selling PC games title, *PC Gamer*. Whatever games console you favour, Future has a title for you, from *The Official PlayStation Magazine* to *GamesMaster*. Prefer to stick to your Mac? In addition to MACFORMAT, you might like to look at *Computer Arts*. We've mentioned it before – it's the magazine for everyone interested in creativity on computers, and there's a trial subscription offer overleaf. Then there's *.net: the Internet magazine*, plus its bimonthly companion title *Net Directory*, helping you discover the most fascinating, unusual or just plain bizarre Web sites. And if you're interested in the world of computer gaming, there's *Edge*, which doesn't review Mac games but did feature a major report a few months ago on why the Mac is a better games machine than the PC, but hadn't established itself as such because Apple tried so hard to get the Mac accepted as a *serious* computer in its early days that in effect it actively *discouraged* games developers. (How different the world might have been...!)

All of Future's magazines are driven by the same philosophy as MACFORMAT: the Future Publishing name is your guarantee of value. All of Future's editors operate under two golden rules: understand your readers' needs, and satisfy them. We do not exist as "advertorial" vehicles, and you might have read how we recently caused some controversy by refusing to run over-the-top computer games ads in our magazines. If you like MACFORMAT, keep an eye out for our sister titles in other fields you're interested in. (End of shameless advertorial...!)

Alex

Alex Summersby
Editor

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Computer Arts is the art, design and technology magazine featuring computer-based creativity in all its forms – image manipulation, video editing, 3D rendering, multimedia, Web design, animation, new technology and lots more. Each issue features a cover-mounted dual-format Mac and PC compatible CD-ROM, with demo software, previews and resources you can use in your own work.

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